POVERTY, GROWTH AND STAGNATION IN NORTH INDIAN AGRICULTURE,

A COMPARATIVE STUDY IN THE POLITICAL ECONOMY OF POVERTY GENERATION

IN WESTERN AND EASTERN UTTAR PRADESH IN THE EARLY 1970s

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ABSTRACT

This thesis is based upon a comparative study of the processes generating rural poverty in the Western and Eastern Regions of the Northern Indian State of Uttar Pradesh round about 1970. For its theoretical underpinning the research uses a mode-of-production approach, characterising the poor Eastern Region as "semi-feudal" while the Western Region is viewed as exhibiting some significant "capitalist" elements. At an empirical level the control by different classes in the two regions of the most important means of production, i.e. land, irrigation and capital is examined, and its effect on output, productivity and incomes assessed within the structure of the different relations of production prevailing in each region. This permits the identification of the poor within the context of the respective class structures in each region and provides a framework within which to examine the dimensions of poverty in Western and Eastern UP.

Sample survey data is used to assess both the extent and depth of poverty among the small cultivator and agricultural labourer population of the two regions. Whereas a vast class of poor tenant cultivators formed the bulk of the poor in the East, and indeed of the population of the region, poverty was largely associated with landlessness in the West and confined to a smaller percentage of the population. Detailed data on the consumption of foodstuffs and necessities is then used to construct estimates of the percentage of the population living below the "poverty line" in each region. The results reinforce the findings of the sample survey data and uphold the basic hypothesis of the thesis that the pattern and nature of poverty found in each region reflects the underlying class structure implicit in the different modes of production of Western and Eastern UP during the early 1970s.

ACKNOWLEDGEMENTS

I should like to thank the Social Science Research Council for a Research Grant which funded the first three years of this thesis, and also provided funds to enable me to travel to India to collect much of the data on which it is based.

While in India I was afforded facilities at the Agricultural Economics Research Centre in Delhi and I owe a debt of thanks to Dr. H. Laxminaryan, who was at the time the Acting Director, for the welcome, hospitality and assistance extended to me by himself and members of his staff. I should also like to thank Mr. S.C. Srivastava, Director of the Perspective Planning Division of the State Planning Institute, in Lucknow, who not only gave me access to raw data on the consumption of rural households, but also extended a hospitable and warm welcome.

In Britain, I am deeply grateful to the continued support of my supervisor, Mr. T.J. Byres, who was a constant and patient source of encouragement over the years of the work's gestation.

My deepest debt of gratitude is to my husband, Dr. Alexander Thomson, who never waivered in his continued support for me in this, at times, seemingly endless project, and to my daughter Isabella who, during her early years, shared her Mummy with this thesis.

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1. INTRODUCTION

This study is concerned with poverty and inequality. These are problems which have exercised Indian economists and others for decades, and for which, as yet, there seem to be no solutions. The dimension of the on-going problem is demonstrated by the fact that in 1983 it has been estimated that 44.4% of the rural population subsisted below what has come to be known as the "poverty-line".[*Dandekar, 1986: A97*]

The 7th Plan (1985-90) reiterated the Indian Government's oft-repeated commitment to poverty alleviation in the form of their avowed objective to bring down the percentage of families living below the poverty line to less than ten per cent by 1994-95.[*Bagchee, 1987: 139*] Theirs, however, is very much a palliative approach, with stress laid upon a programme of measures targeted at alleviating the poverty of individual poor households. Basically, it entails three specific and inter-related programmes, the Integrated Rural Development Programme which concentrates on income generation through asset and skill endowment; the National Rural Employment Programme which aims to directly supplement wage employment; and the Rural Landless Employment Guarantee Programme. None of these programmes, however, addresses itself to the central problem of poverty generation, which it is our contention has its roots deeply embedded within the social structure itself.

There are questions which need to be raised regarding the structure of wealth, income and consumption inequalities, and by implication the dimensions of poverty, within agriculture itself. It is not enough simply to say that 44% of the rural population live below the "poverty line". We need to know who these people are, to which classes they belong, the depth of their poverty and whether

poverty is more acute in some regions than in others. It is only by doing this that we can begin to formulate the mechanisms by which poverty is generated and perpetuated within the agricultural sector itself, and it is only then that policies aimed at the immediate amelioration, if not alleviation of the problem, can be suggested with any confidence in their effectiveness.

It is the contention of this thesis that rural poverty is a multi-dimensional problem. Although the end results may be the same in terms of inadequate incomes to provide a minimum level of living, the mechanisms generating this situation differ between regions. It is suggested, for instance, that in areas where the "Green Revolution" technology has been successfully adopted, poverty is the result of different processes than in areas where agriculture remains backward and of low productivity. It is crucial that these different processes be identified if measures appropriate to the poverty specific to each region are to be adopted.

To this end, we have employed in this study a "mode of production" approach as a framework within which to analyse the inter-related problems of poverty and inequality. The production relationships into which individuals of different classes enter in the process of production is crucial in determining their position in the class structure, and it is the level of development, and control over, the forces of production, that determines their capacity to generate an income for consumption and/or investment.

We have chosen the Northern Indian State of Uttar Pradesh as the focus for our study. This is ideal from our point of view as it contains within its boundaries the agriculturally prosperous region of Western UP, one of the key "Green Revolution" areas of the country, and at the other extreme, the agriculturally backward and depressed

Eastern Region. In this way we can compare the processes of poverty generation in the two regions, characterising the West as possessing a largely capitalist mode of production, whereas the East has been examined within the context of a largely semi-feudal structure.

2. SCOPE OF THE STUDY

The study takes a cross-sectional approach to the problem, being a study in depth of UP around about the year 1970-71. This was the time at which the "Green Revolution" was just taking off in the Western Region. As such, we have in effect broken into the start of a process which has now largely worked through. In effect, therefore, this thesis is essentially an exercise in recent economic history. It does, however, help us to understand the present (i.e. circa 1990) by identifying and analysing the structures of the recent past - and as that recent past includes the introduction and early stages of the "new technology" the analysis may help illuminate the later stages of its dissemination, operation and impact, by providing a picture of the base from which it proceeded. The study is dynamic in the sense that the historical processes which gave rise to the 1970-71 structure and relationships are considered.

The study includes ten chapters in all. The remainder of this chapter comprises a Review of the Literature on Rural Poverty and Inequality in India. Chapter 2 takes a detailed theoretical look at the whole concept of a mode of production and elaborates how it can be used to illuminate the problems of rural poverty and inequality in India, and in the Western and Eastern Regions of UP in particular. It thereby provides the theoretical framework for the rest of the thesis. Chapter 3 outlines the features of Uttar Pradesh, its economy and history, paying particular attention to those historical

developments which have had an impact upon the development of the class structure in each region. Chapter 4 is divided into two parts. Part 1 deals with the provisions and effects of land reform in the two regions, while Part 2 makes a detailed analysis of the pattern of landholding and tenancy in 1970-71. Chapter 5 examines the distribution of irrigation, capital and wealth among the agricultural classes of the two regions. Chapter 6 uses the 1968/69 Farm Management Studies of Muzaffarnagur District in Western UP to make a detailed examination of production and income generation on different sized farms, and Chapter 7 does the same for the Deoria District of Eastern UP. Chapter 8 looks in detail at the situation of agricultural labourers and marginal farmers in each region, and Chapter 9 compares poverty in the two regions as measured by the number of people falling below the "poverty line". Chapter 10 contains the conclusions.

3. REVIEW OF THE LITERATURE

This Survey of articles on Poverty and Income Distribution in India is not intended to be a comprehensive review of all the literature on this topic. Several important articles which have produced insights widely quoted and used by later authors have been selected and reviewed under topic sub-headings rather than in chronological order. This is not to say that important work has not been contributed by other writers - it has, but the literature on the subject, is now so vast that selectivity has to be practised.

This is a fast growing field of study which has mushroomed since about 1970. Not only have significant advances been made in the critical appraisal of existing data sources, thus allowing us to pinpoint the strengths and weaknesses of the available statistics, but

with the advances in theoretical and conceptual precision, authors are now in a position to use these new measures of poverty and inequality on existing data and thereby present an analytically more comprehensive and meaningful picture of the dimensions of poverty and income distribution in India than ever before.

In 1962 the first explicit commitment to the alleviation of poverty was made in the name of the Government of India, by the Perspective Planning Division in its document "Perspective of Development 1961-1976 - Implication of Planning for a Minimum Level of Living - A Decade of Development"[*Gov't. of India, 1962*]. After considerable discussion on the minimum standard of living it recommended that "The national minimum for each household of five persons (four adult consumption units) should be not less than Rs. 100 per month in terms of 1960-61 prices, or Rs. 20 per capita, and that "as a first exercise, the target period within which the national minimum should be attained may be taken as fifteen years from 1960-61 or by 1975-76."[*Gov't. of India, 1962: para 2*]

While this document was tremendously significant in making such a written pledge to the alleviation of poverty it did so very cautiously, and there was a clear commitment throughout the paper to the maintenance of the existing structure of distribution, if not the existing proportions.

> "Any drastic redistribution at the present level of incomes, even if it were feasible, is bound to make the mobilisation of savings for investment far more difficult. Moreover, such a measure will reduce the incomes of skilled workers, supervisors, managers, entrepreneurs and other groups who have a crucial role in developing the economy. Unless these groups are permitted incomes substantially above the average, development will be affected adversely. Some degree of inequality in incomes is thus an essential part of the structure of incentives in any growing economy."[*Gov't. of India, 1962: para 6*]

The strategy outlined by the PPD depended substantially upon

generating sufficient growth in the economy to raise the consumption level of the population across the board, although it was conceded that the poorest 20% would experience difficulties. This "vast reserve of under-employed labour in rural areas" was unlikely to benefit from such a strategy "unless specific steps are taken to deal with their problems."[*Gov't. of India, 1962: para 2*]

3.1 **THE "POVERTY LINE"**

The PPD document spawned a great many papers in India and abroad on the subjects of poverty and inequality, one of the most notable of which was that by Dandekar and Rath [1971]. Commissioned by the Ford Foundation, this pioneering piece of work set out specifically to examine to what extent the projections contained in the Perspective Planning Division document had been fulfilled. The rural minimum consumption level proposed by Dandekar and Rath, was at Rs. 15.0 per capita per month in 1960-61 prices, somewhat less than that of the PPD. The urban minimum they set at Rs. 22.5 per capita per month. These figures represented the expenditure required to achieve a calorie level of 2,250 per capita per day, widely regarded by nutritional experts as adequate under Indian conditions.[*ICMR, 1968, 1981*] These figures were subsequently adopted as a norm or "poverty level" by most writers on the subject.

However the use by Dandekar and Rath of such a calorific minima as the basis on which they calculated the costs of the consumption basket, and thereby the so-called "poverty level" in rupee equivalents was beset with great difficulties and came in for some powerful criticism from a number of sources. Probably the most influential was that by P.V. Sukhatme. [1978, 1981, 1982] He maintained that "in applying this criterion to estimate the extent of poverty they have misused the meaning of requirement. In particular,

they have mistaken the average energy need of an individual for the minimum need ignoring the fact that energy needs vary between and within individuals even of the same age-sex group."[*Sukhatme, 1978: 1375*] Sukhatme accused Dandekar and Rath of making the implicit assumption that the average requirement per consumer unit is the desirable minimum for health for people of the reference type and that once the poverty line corresponding to the average requirement was crossed, one was healthy and active regardless of the magnitude of the excess above the requirement per consumer unit. But, said Sukhatme, "it has been well documented that individuals with similar body weight and occupation vary widely in their energy intake. There is also considerable experimental evidence showing that individuals can adapt their requirements to change in intake over a moderate range without change in body weight and level of physical activity." [*Sukhatme, 1978: 1375*] To assume that each individual in health had the same fixed true requirement as the "reference" individual was therefore to impose too strong an assumption.

Sukhatme placed the co-efficient of variation for calorie requirement at approximately 15%, which meant that the requirement of a healthy active adult would vary around the mean value with a standard deviation of approximately 375 calories. This brought into question Dandekar and Rath's estimates of the number of people living in poverty. Using the FAO figure of 2,250 calories as a minima, and converting it to a level of Rs. 15.0 per capita per month, they estimated that 40% of the rural population was living in poverty in 1970-71. Sukhatme challenged this, and maintained that if a standard deviation of 375 calories around the norm was taken account of, and using the 1971-72 food consumption data, the incidence of malnutrition, and hence on this definition, of poverty, for rural

areas was closer to 20%. [*Sukhatme, 1978: 1383*]

A similar criticism was levelled by V.K.R.V. Rao [*1977*] who considered that the methodology produced "the paradoxical result that the poor as defined also include the not-poor and that the not-poor include the poor. . . . Poverty has to be identified with deficiency in the total level of living. And total level of living includes not only energy requirements but also balanced diet needed for health, and the other components of basic needs essential for human existence at a tolerable level. This identification of poverty has still to be undertaken in India". [*Rao, 1977: 645*]

Dandekar [*1986*] subsequently replied to these criticisms, conceding that he and Rath had at times confused the distinction between poverty and under-nutrition, and stressing that their own monograph was essentially about poverty - a far wider concept. This, said Dandekar, lay at the root of Rao's criticism. "Rao gets into what he calls paradoxical results because he uses the terms 'poor' and 'not-poor' in two different senses without seeing the difference. Indeed, he comes close to seeing the difference when he uses two different terms, namely, 'poverty' and 'under-nutritional poverty' but he misses the distinction. What Rao calls 'undernutritional poverty' is what I earlier suggested we should call simply 'under-nutrition'. Then all that Rao discovers is that some poor are not under-nourished while some not-poor are under-nourished. There is nothing paradoxical in this result." [*Dandekar, 1986: 1243*] Dandekar levelled essentially the same criticism at Sukhatme. In his 1981 article Dandekar accepted the existence of inter- and intra-individual variation in the energy requirement of individuals, as also the magnitude of this variation as Sukhatme had indicated it, namely, a standard deviation of 450 calories for energy requirement of individuals and 225 calories

the standard deviation of household requirements per consumer unit. However, he asserted that in order to obtain an estimate of just 20% of the rural population living in poverty, Sukhatme had blundered in his use of statistical methods, so that "the average standard deviation of the average requirement of a group of 1,748 households is not 225 calories but 225/41.8 = 5.4 calories, 41.8 being the square root of 1.748." [*Dandekar, 1986: 1250*] Given this, and despite their failure to take account of inter- and intra- individual variations in energy requirement, Dandekar asserted that Dandekar and Rath's estimate of poverty stood, and that "on the basis of the 26th Round (1971-72) of the National Sample Survey, about 46.4% of the rural population was poor and not merely 20% as Sukhatme would estimate it." [*Dandekar, 1986: 1250*] The debate did not end there, with Sukhatme replying to Dandekar in an article in which the tone of argument became increasingly rarified and abstruse, and seemed to show as Dandekar had maintained that they were talking about different things.

My own opinion is that in highlighting the need to be aware of inter- and intra- personal variations in average energy requirement, Sukhatme has performed a vauable service in reminding all of us working in the field of poverty, that the concepts and measurements we use, lack precision not only because our data is imperfect but because the concept of a minimum energy requirement, and hence of a nutritional minimum is incapable of exact quantification. There is also another important point that Sukhatme raised, which was that concentration on food requirement as the dominant factor in assessing poverty distracted attention away from other basic needs such as drinking water, sewerage, hospital and midwifery services - all of which contribute to improving the quality of life. This is a political point. [*Sukhatme, 1978: 1384*]

Despite its admitted shortfalls, Dandekar and Rath's monograph, did focus attention on the whole question of poverty and poverty measurement, and was in fact much wider in its concerns than the criticisms of Sukhatme and Rao would suggest. They did in fact produce some interesting, if controversial results in other areas concerned with poverty. In particular, judging the PPD on its own assumptions, i.e. the capacity to reduce poverty via accelerated economic growth, they found that with growth of only 3% between 1961 and 1968-69, and a population increase of 2.5%, there was little margin left for actual improvements in standard of living. Indeed, they showed that net national product per capita in constant prices increased from just Rs. 306.7 per annum in 1960-61 to Rs. 319.4 in 1968-69. [*Dandekar and Rath, 1971: 34*] This shows clearly the divergence between the PPD's targets and the actuality of the situation.

Dandekar and Rath were the first in a long line of researchers to base their assessment of poverty levels on nutritional minima. Using this type of nutritional information G.S.Chatterjee, D. Sarkar and G. Paul [*1971*] attempted to draw up estimates of calorie intakes "on the basis of a representive sample of the population so that relative variations in nutritional intake by different sections of population in the rural sector may be assessed". Using National Sample Survey data on the quantity and value of various food items consumed by households, and collected during the 13th Round - September 1957 to May 1958 - they concluded not only was there considerable variation in the average intake of calories and nutrients by different fractile expenditure groups, but there were also considerable regional variations. East India in general was the most deficient in

calorific and nutrient intake, closely followed by South India. [*Chatterjee, Sarkar, Paul, 1971: Table 1*]

Ashok Rudra [*1974*] used a nutritional norm in order to make a critical examination of the figure of Rs.20.0 in 1960-61 prices quoted by the Perspective Planning Division document. He saw one of the major problems as that of converting the quantities of food and other commodities consumed into values by the use of suitable price multipliers.

> "By the very nature of the problem there cannot be any satisfactory solution to the problem of price weights. Given the temporal, spatial and quality-wise variation of prices for any one of the items of the basket of commodities specified any number standing for a 1960-61 price has to be the result of some kind of crude averaging process which cannot be justified by any theory of averaging." [*Rudra, 1974: 283-284*]

Using a food basket compiled by Sukhatme, Rudra employed average rural retail prices for 1960-61 derived from NSS data. On this basis it worked out at a valuation of Rs. 15.71 per capita per month, adding in non-food items of rural consumption he valued the total consumption basket per capita at Rs. 22.73 per month in 1960-61 prices for rural consumers. Using the unmodified FAO norm the basket of commodities was valued at Rs. 28.6, and using Patwardhan's norm at Rs. 15.63. As such he concluded that the figure of Rs. 20 per capita per month quoted by the PPD "does not represent any meaningful minimum". [*Rudra, 1974: 287*]

This highlights the essential arbitrariness of any so-called poverty-line , and brings into focus another problem - i.e. the poverty-line approach tells us nothing about the depth of poverty - do we for instance regard all those as living above the benchmark per capita consumption level as having enough and all those below it as an undifferentiated population of poor people? It is for these reasons that in our own work we have included an assessment of the

percentage of people living below this poverty line as only one small element within a much wider context.

3.2 **SEN's POVERTY MEASURE**

Amartya Sen's pioneering article "Poverty, Inequality and Unemployment - Some Conceptual Issues in Measurement",[*1973*] tackled this problem head-on, and suggested "an alternative measure of poverty which is, in some important ways, superior to the measure used in the poverty debate."[*Sen, 1973: 1457*]

Sen maintained that conventional poverty measures which emphasise a poverty-line as a cut-off point make it worthwhile for public policy makers, seeking credit for achievements, to concentrate on people just below the specified poverty line. Pushing them a little higher up brings in rich dividends in terms of this poverty measure, while the credit for improving the consumption of even poorer people - without bringing them above the poverty-line is likely to be zero. The concentration on the "potentially viable" small farmers in the recent schemes of rural development reflects an approach that is closely aligned to the conception of poverty represented by the poverty-line approach to measurement. "While there is no doubt that the poverty debate that took place recently has contributed much to our understanding of certain important aspects of the Indian economy" said Sen, "the nature of the measurement used provides scope for public policy being concerned with the relatively richer among the poor, ignoring greater suffering."[*Sen, 1973: 1463*]

In order to modify the poverty measure to take account of these problems Sen proposed two changes. Firstly any measure of poverty should be concerned "not merely with the number of people below the poverty line but also with the amounts by which the incomes of the poor fall short of the specified poverty level", and secondly "the

bigger the shortfall from the poverty level, the greater should be the weight per unit of that shortfall in the poverty measure."

To formulate such a measure Sen adopted a methodology based upon that incorporated in the Gini coefficient.

Formula for Sen's Poverty Measure

y^* = the minimal acceptable level of living

q = no. of people at or below the poverty line, i.e. $y_q = y^*$;

r_i = the weight on the poverty gap of person i;

$A(Y, n)$ = a parameter dependent on total income Y and population size n.

Satisfying Sen's two conditions above, his poverty measure P is expressed in the following general form:

$$P = A(Y, n) \sum_{i=1} (y^* - y_i) r_i$$

with $r_i \geq r_j$ whenever $i < j$.

As in the Gini coefficient this measure uses a system of rank order weighting. A simple measure, closely aligned to the Gini coefficient of inequality will be:

$$P = (2/n^2 z) \sum_{i=1} (y^* - y_i) (q - i + 1)$$

A slight variation helps to make the poverty measure independent of the absolute size of the population, i.e. make the value of P unaffected by multiplying the population of each income group by some positive number:

$$P = (2/n^2 z) \sum_{i=1}^{q} (y^* - y_i) (q - i + \tfrac{1}{2})$$

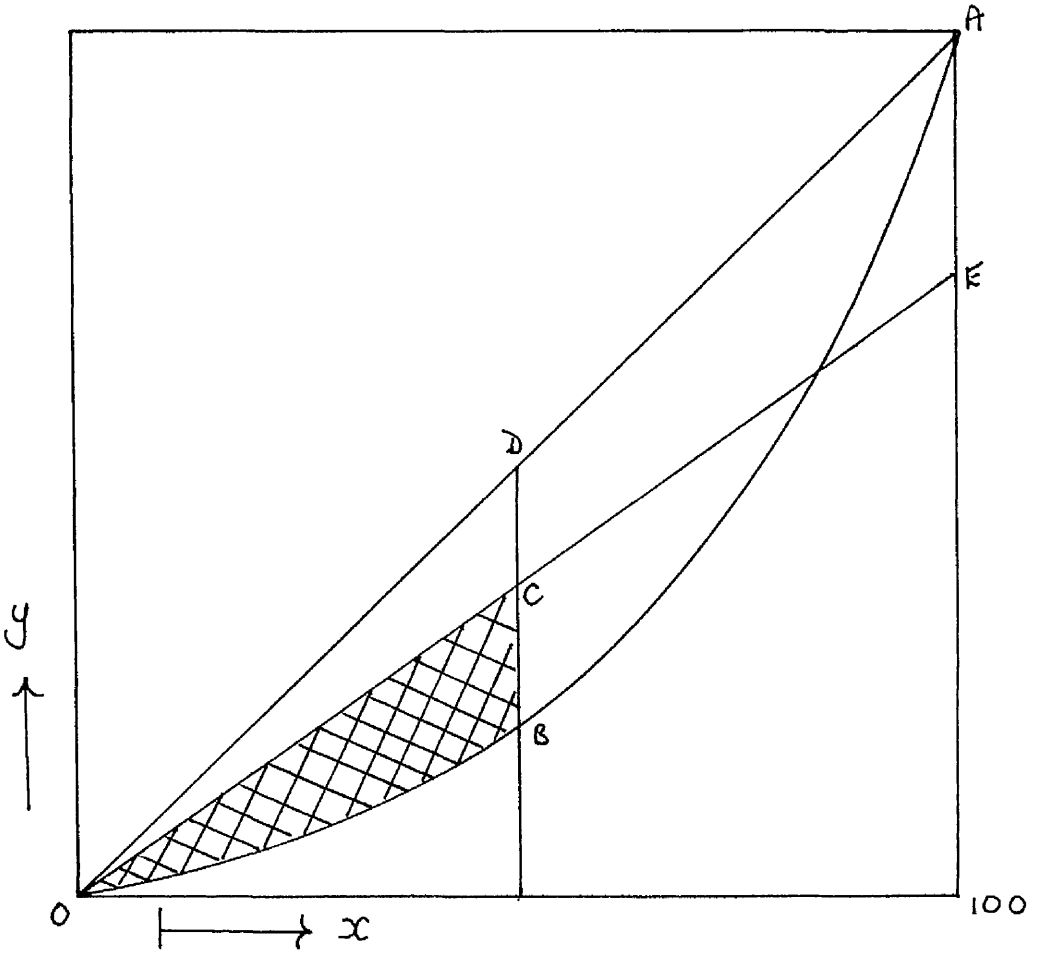
It is easily checked that putting $q = n$ and $y^* = z$, we get the gini coefficient as a special case of this poverty measure.

Further, the measure can be made independent of the mean income Z by choosing:

$$P = (2/n^2 y^*) \sum_{i=1}^{q} y^* - y_i) (q - i + \tfrac{1}{2})$$

As long as the poverty line y^* and the incomes of the poor remain the same a change in the mean income Z will not affect P above.

In the diagram below the poverty measure is roughly represented by the shaded area OBC, where the slope of OE represents the poverty level normalised in percentage units. It differs from the Gini coefficient (area OBA), which is a measure of relative inequality, in two ways, viz., (a) in being concerned only with the people who lie below the poverty line (leaving out area DBA), and (b) in calculating the income differences from the poverty level and not from the average income of the distribution itself (leaving out area ODC). On the other hand, it differs from the standard poverty measure q in being sensitive to the size of the income gaps of the poor, and in putting more weight on the relatively poorer both (a) by noting their larger income gaps as well as (b) by putting in greater weights *per unit* on their income gaps.[*Sen, 1974: 1463*]



Sen concluded by arguing that as a measure of poverty, P is superior both to the usual head-count as well as to the standard measures of relative inequality. Furthermore, the data requirement to estimate P is less than that needed to draw the Lorenz curve or to calculate the Gini coefficient, both of which are frequently performed.

Sen's work was of great importance in determining the most fruitful direction for subsequent theoretical work on poverty. Of particular significance was the development of a poverty measure which did more than group all those below a given poverty line in one category. Although based upon rank weightings, Sen's measure went some way towards giving descriptive expression to degrees of poverty. The next step must surely be for someone to produce a statistical measure which incorporates not only a rank ordering but the intensity of poverty in absolute terms. Reliance on rank orderings means in effect that what we have is a measure of relative poverty, but without the size of interval between the members of the population being taken account of. If this could be done then it would be possible to produce a much superior measure of the intensity of poverty.

The other interesting feature of the measure is that it utilises the familiar Lorenz curve. In those cases where Lorenz curves interesect, therefore we can employ Sen's P measure to assess the degree of poverty (however defined) in any distribution. The P measure has now taken its place as a tool of poverty analysis and is widely used in research.

3.3 THE DATA SOURCES

Implicit in all attempts to assess the extent of poverty is the assumption that the data and price indices used to generate estimates of poverty and inequality are representive and reasonably accurate .

Dandekar and Rath, used a combination of National Accounts Data and National Sample Survey Data. Their article is open to criticism because they used the implicit National Income Deflator in order to achieve estimates of Per Capita Private Consumer Expenditure in Constant Prices. As this includes investment as well as consumption goods it is far from an accurate indicator of the trends in prices faced by the poorest sections of the community. It also covers the prices of both agricultural and manufactured commodities and is therefore likely to lead to a serious underestimation in the prices paid by the rural poor, particularly in view of the fact that during the 1960's the prices of agricultural commodities rose at a much sharper rate than those of finished manufactures. [*Bardhan, 1974: 122*] They found their estimates for 1960-61 of rural per capita private consumer expenditure derived from the National Accounts (Rs. 258.8) and those based on the National Sample Survey (Rs. 261.2) to be in close agreement, whereas for 1967-68 there was a substantial discrepancy in real terms with a figure of Rs. 268.6 (in 1960-61 prices) for per capita expenditure figures derived from the National Accounts, and a much lower figure of Rs. 239.8 for the deflated National Sample Survey estimates. Dandekar and Rath [*1971*] concluded that the NSS figures must be underestimates. However their use of the implicit National Income Deflator to produce constant prices for both series must raise a very serious question mark over both these later estimates. As it included the implicit price weights for investment, as well as consumption goods, it is unlikely to have provided a true reflection of the prices faced by the rural poor. Indeed, Bardhan described its use in such a context as "highly improper". [*1974: 117*]

The ensuing controversy stimulated a whole spate of articles

aimed at examining the degree to which the National Accounts and the National Sample Survey accurately reflected private per capita consumer expenditure. Bardhan, in particular, came down in favour of the NSS, as he maintained that the National Accounts contained too many items which have no relevance, such as "consumption of private non-profit institutions and imputed value of rentals in owner-occupied homes". [*Bardhan, 1974: 116*] At the same time he contended that "a large part of the components of national income, (particularly, animal husbandry, small scale industry and trade and household services) are estimated on an extremely arbitrary and notional manner". [*Bardhan, 1974: 116-117*] This alone he considered to be enough to produce the discrepancy between the National Accounts estimates of per capita consumption and those of the NSS.

The NSS data itself hass not been immune from criticism. A comprehensive article by A. Vaidyanathan [*1986*] subjected the National Sample Survey data on consumption to a rigorous examination. He attempted to review systematically the various possible sources of "bias" and "error" cited by a number of authors over the previous two decades. Of particular concern was the oft-quoted discrepancy between the CSO estimates of per capita consumption and those of the NSS. He concluded that "it is not possible to say anything definite on the accuracy or the NSS estimate of the level of per capita consumption. While the sampling error seems to be quite small, and the sampling design unbiased the scope for non-sampling errors is considerable. There are indications that NSS generally over-states foodgrain consumption and that the degree of over-estimation is higher in the upper income group."[*Vaidyanathan, 1986: 135*] As such the NSS would also tend to overstate the disparities in consumption.

Vaidyanathan saw problems arising from changes in the degree of

non-sampling errors for estimates relating to foodgrain and clothing as a result of changes in the design of schedules and in concepts over time. "In both cases, there is reason to believe that the official estimates (which point to a mild rising trend) are much more reliable indicators of changes in consumption than the NSS (which shows a significant reduction during the sixties). Consequently even if we assume that the NSS estimates for other items are more reliable than the official series for assessing changes, the NSS series would tend to underestimate the growth (or exagerate the decline) in per capita consumption."

Looking at the period 1958/59 to 1973/74, Vaidyanathan concluded that "there is reason to believe that the NSS tends to overestimate the consumption of foodgrains and cloth at the beginning of the period and that the degree of overestimation has fallen during the sixties." He found this to be more pronounced among the upper income groups than the lower. Consequently:-

> "if this surmise is correct the NSS would tend to understate the extent of deterioriation (or exagerate the improvement) in inequality in the distribution of consumption". . . .Insofar as the NSS understates the growth in average per capita expenditure, (or exaggerates the decline) it would tend to exaggerate the extent of increase in incidence of poverty (measureed by the proportion of population falling below a specified poverty line). However, its tendency to understate the worsening of inequality (or overstate the improvement) would have the opposite effect. It is not possible to say, with the evidence at hand, what the relative strength of the two effects are." [*Vaidyanathan, 1986: 135*]

Despite its shortfalls, the National Sample Survey has the advantage over the CSO data of being based upon actual survey material, and has proved to be the most widely-used and valuable data source for poverty in India. It also has the important advantage of being disaggregated not only by state, but also for rural areas by size class of agricultural holding, and by income level. For Uttar

adesh, the NSS data is disaggregated by region, and is therefore utilised extensively in subsequent chapters of this work.

3.4 PRICE INDICES

Benefitting from the debate following Dandekar and Rath's article, most authors used more appropriate price indices. Bardhan [*1973*] attempted to assess the incidence of poverty in rural India during the 1960's. Using NSS data deflated by the consumer price index for agricultural labourers he concluded that the percentage of rural people with less than the minimum level of living increased from 38% in 1960-61 to 54% in 1968-69. A principle reason for this was that the prices faced by the rural poor doubled during this period.[*Bardhan, 1973: Table I*]

That being the case it is important to consider the suitability and accuracy of the Consumer Price Index for Agricultural Labourers for this purpose. Bardhan made a comprehensive study, constructing fractile-specific price indices from NSS sample data of average rural retail prices. He chose 43 items covering about eighty per cent of the consumption budget of the poorest section of rural society. Taking the annual average retail price for each of these items for 1960-61 and 1968-69 he worked out a price index for each item. Multiplying these indices by consumption weights for the bottom five deciles of rural population, Bardhan achieved fractile-specific general consumer price indices and found a very close correspondence between these and the CPIAL. On that basis he concluded that the latter did indeed accurately reflect the prices faced by the rural poor. On the basis of CPIAL applied to NSS data, and taking Rs. 15.0 per capita per month as the minimum level of living Bardhan concluded that there had been "a clear and uncategorical increase in the proportion below the poverty line - from 38% in 1960-61 to 54% in

1968-69.[*Bardhan, 1973: 275*]

The CPIAL itself has, however, also been subject to criticism. Tyagi [*1982*] argues that it exagerates the extent of the rise in prices because it is based on 1956/57 weights. Tyagi points out that prices of wheat, production of which has increased rapidly, rose somewhat less than prices of items such as barley and gram (chickpeas) whose production growth was more modest. Consumption patterns have changed in favour of items whose prices rose less, as such he shows that a composite index of cereal prices for 1973/74 using CPIAL weights was 2.6 percent higher than one using weights derived from the 1973/74 pattern of actual cereal prices. As cereals account for only about 50 percent of total consumption expenditure among rural classes the effect of this particular bias may well be small. However, any upward bias in the price index would lead to some overstatement in the extent of poverty in the seventies.[*Tyagi, 1982: A54-A62*] As we use the CPIAL in the subequent work it is important to bear such possible biases in mind.

The prices faced by the rural poor are a crucial determinant of their real level of consumption. Indeed, it was the view of Dharm Narain that because of the rural poor's small share in the marketed agricultural surplus; rigidities in rural wages, which were increasingly monetized; and the widespread dependence of the poor on market purchases for consumption needs, that "changes in the nominal price of the consumption basket of the poor had a far greater and more immediate impact on their ability to cross the poverty line than on their incomes, whether they were producers of these commodities or farm labourers."[*Desai, 1985: 2*] So convinced was he of the crucial importance of prices that in his own analaysis of poverty series, he included the CPIAL as an independent variable in his regressions.

This highly unorthodox procedure, which effectively included the price index twice - once in order to derive the poverty line from current-value data, and secondly as a causal factor, laid him open to a great deal of criticism of double counting, and raised yet another debate on poverty, particularly with Ahluwalia who expressed the view that the use of CPIAL to estimate poverty percentages would produce a spurious positive correlation between the price variable and the percentage of the rural population in poverty. [*Ahluwalia, 1985: 66-67*] Dharm Narain did not agree. According to him the estimates of poverty percentages in different years were based on (1) the NSS findings on the distribution of household expenditure and (2) poverty lines in current-value terms. Although measurement of the poverty line was statistically influenced by CPIAL, its influence on the distribution of household expenditure, was causal rather than statistical. He maintained that only if it is assumed that the distribution of household expenditure remained unchanged over time can one say that the use of CPIAL in estimating poverty percentages will produce a spurious positive correlation between the proportion of the population in poverty and CPIAL. [*Desai, 1985: 3-4*].

Amartya Sen [*1985*] supported Dharm Narain's reasoning because "the price variable adds to the explanation of poverty even on its own insofar as its impact is not eliminated by correponding wage adjustment." However, says Sen " the response of wages may vary a great deal from one situation to another. The important lead given by Dharm Narain takes explicit note of the commercial basis of modern poverty, but that lead has to be supplemented by other parameters of commerce and exchange."[*Sen, 1985: 16*] As we shall show in the succeeding chapters, there is considerable evidence to uphold Narain and Sen's views that prices, are in fact a very important causal

factor in poverty generation.

3.5 AGRICULTURAL GROWTH AND POVERTY

This raises the whole question of the extent to which agricultural growth has a "trickle-down" effect upon rural poverty. The principal exponent of the view that it does is Montek Ahluwalia [*1978(a), 1978(b), 1985*]. Using the National Sample Survey data on rural consumption, and a poverty line of Rs. 15.0 per capita per month, deflated by the Consumer Price Indices for Agricultural Labourers, he constructed a series of estimates of the percentage of of the rural population living in poverty, at the state and national level between the years 1956-7 and 1973-74.

Using a weighted sum of the estimated percentages in poverty in individual states to derive the All-India level, his results showed a marked fluctuation over time in the extent of rural poverty. It declined from over 50% in the mid-fifties to around 40% in 1960-61, rising sharply through the mid sixties, reached a peak in 1967-68 and then declined again. The Sen Index also displayed the same pattern. As a result he concluded that "we are measuring substantial fluctuations in the intensity of poverty and not merely marginal shifts of large numbers from a position slightly above the poverty line to a position slightly below."[*Ahluwalia, 1978(a): 303*] He derived similar conclusions from his examination of poverty in the individual states.

Ahluwalia chose to take the level of agricultural production relative to the size of the rural population as his principal determining variable. Then, "if there is any 'trickle-down' mechanism at work in the rural economy we should expect increases in agricultural production per head to reduce the incidence of absolute poverty"[*Ahluwalia, 1978(a): 308*]. Using regressions, Ahluwalia

stated that "we find that improved agricultural performance is definitely associated with reductions in the incidence of poverty" and that "there is clear evidence of an inverse relationship between rural poverty and agricultural performance. . . . Such empirical relationships are at best a crude basis for drawing inferences about complex causal mechanisms, but taken at face value they do suggest that there is some trickling down of benefits from increases in agricultural production."[*Ahluwalia, 1978(a): 310*]

When Ahluwalia looked at the individual states he found that Kerala, Orissa, Punjab and Haryana, Tamil Nadu, Uttar Pradesh and West Bengal exhibited increases in output per head of population, while there was no "significant trend decline in the incidence of poverty". [*Ahluwalia, 1978(a): 312*] This landed Ahluwalia in something of a quandry as it seemed to refute his basic hypothesis, although he tried to wriggle out of it by suggesting that "while there were factors operating in the rural economy which tended to increase the incidence of poverty, agricultural growth leading to higher output per head tended to offset the adverse impact of these factors."[*Ahluwalia, 1978(a): 315*] As a result, he in essence concluded that increases in agricultural output per head were potentially beneficial on poverty levels, provided they could be done without technological changes that were excessively labour displacing, and makes the politically important statement "*that such increases can be achieved within the existing institutional structure*, without affecting the other factors which operate to increase the incidence of poverty."[*Ahluwalia, 1978(a): 315*]

Not surprisingly, Ahluwalia's analysis came in for a lot of criticism. Griffin & Ghose [*1979*] questioned his choice of reference period. If the series was started in 1960-61 instead of

1956-57 then "there is no significant relationship between the change in rural poverty and the rate of growth of agricultural production". They concluded that "there is no evidence whatever, let alone 'very strong evidence', that agricultural growth tends to reduce the incidence of rural poverty. The connection between the two is approximately zero."[*Griffin & Ghose, 1979: 372*]. This is a point that Ashwani Saith took further - "from the point of view of the perceptions of the poor, the unmitigated experience of poverty over the post-1960-61 period could hardly be deemed to have been washed clean by the hazy memories of three rosy years when poverty was declining temporarily".[*Saith, 1981: 199*] Rather than seeing growth as alleviating poverty, Saith considered that "the truth might be the reverse: that the growth that has characterised the Indian economy, since it ran out of 'slack' in the early 1960s, has been of a type that has generated a sharp increase in the incidence of poverty." [*Saith, 1981: 199*]

Pranab Bardhan was another strong critic of the trickle-down hypothesis. Says Bardhan, quoting Kohli (1980) on the negative correlation between poverty and agricultural performance ". . . if all it means is that in years of better rainfall (or other acts of mercy by nature) rural poverty tends to decline, it will be an acceptable proposition to most people on both sides of the debate (although some may regard this trickle-down as not enough)."[*Bardhan, 1985: 77*] Bardhan constructed several poverty series, including one aggregated at state level for 1971/72, using National Sample Survey data, and regressed various possible explanatory variables against the figures. He found that there was less rural poverty in more productive regions but more in areas with more unequal distribution of asset ownership and higher consumer prices for the poor. Bardhan concluded that

agricultural growth and productivity improvements in general tended to help raise incomes all around, but that certain types of growth processes generated negative forces for the poor, particularly in an institutional setting of highly unequal distribution of assets and access to resources. [*Bardhan, 1985: 91*] This seems to be a fair assessment of the situation, as we shall demonstrate in subsequent chapters

This debate has a great deal of relevance to the subsequent chapters of this thesis, for by contrasting the levels of poverty in the more dynamic Western Region with those in the stagnant Eastern Region, we are implicitly asking the question of the extent to which growth appears to have exacerbated or inhibited the extent of poverty.

3.6 REGIONAL PATTERN OF POVERTY

This brings us on to the contentious issue of the extent of poverty in the states of India. Several authors have attempted at one time or another to make judgements on the regional dimensions of poverty.

Dandekar and Rath, in their 1971 article, examined the situation in 1961-62. Taking their norm of a poverty level of Rs. 15 per capita per month, based upon the nutritional minima already discussed, they found that more than 90% of the population of Kerala, were on this definition, living in poverty. [*Dandekar & Rath, 1971: 29*] However, this conclusion has been criticised by Panikar [*1972*] on the basis that tapioca enters disproportionately into the diet in Kerala. As weight for weight more of this commodity is required than for either rice or wheat this led Dandekar and Rath to over-estimate the cost of a nutritionally adequate diet. This highlights the need for region-specific price-indices, for Dandekar and Rath could not have reached such a conclusion if they had not used aggregated all-India

price estimates. In our own work in Chapter 8, assessing the extent of poverty in the Western and Eastern Regions of UP .using nutritional norms, we have gone to considerable lengths to construct region-specific indices, which are at the same time comparable.

Leaving Kerala aside, Dandekar and Rath's estimates placed the Central Indian states of Andhra Pradesh and Maharashtra as having more than 60% of their rural populations below their specificed poverty line in 1970-71. Uttar Pradesh was favourably placed among the lowest poverty states along with the Northern Indian states of Punjab/Haryana and Jammu/Kashmir and the Western States of Rajasthan and Gujarat, all of whom were estimated to have fewer than 20% of their rural population living in poverty. [*Dandekar & Rath, 1971: 29*] However, their state estimates are subject to the same criticisms already quoted as having been levelled at their all-India estimates of a poverty-line based upon a nutritional minima.

Other authors who have attempted state-specific estimates of poverty include Chatterjee Sarkar and Paul [*1971*], Bardhan [*1973*], Bhatty [*1974*], and Ahluwalia [*1978*]. Chatterjee, Sarkar and Paul used 13th Round National Sample Survey data for 1957-1958 to estimate average per capita consumer expenditure. They concluded that the lowest level was in South India, followed by the states in the Eastern Zone. However, when they considered nutritional intake based upon calories and vitamins this was reversed. [*Chatterjee, Sarkar & Paul, 1971: Tables 1 & 3*] Bardhan's paper, which dealt with the year 1960-61, and also used the National Sample Survey, revealed that the states in East India had the highest estimated percentage of people below the Rs. 15.0 poverty line, and also the highest food prices. [*Bardhan, 1973: Table 4*] Bhatty's work differed from that of other researchers in that he used data collected by the National Council of

Applied Economic Research originally assembled in order to study the effectiveness of employment in rural India referring to the year 1968/69. It also differed from earlier studies in that he examined income rather than consumption data and employed Sen's P index. He used five separate figures to represent the poverty line, at Rs. 5 intervals from Rs. 15 to Rs. 35, and in a somewhat questionable procedure used the wholesale prices of agricultural commodities as a deflator. He found that the P coefficient for the rural population to be the highest in Gujarat and the lowest in Punjab-Haryana and that this ranking of the two states remained unaltered at all the five poverty levels. He categorised the states into high medium and low poverty states. Using a poverty level of Rs. 20 per capita per month then, Gujarat, Madhya Pradesh, Rajasthan which run in a belt across the middle of India, and Tamil Nadu in the South had the largest proportions of their rural populations living in poverty, whereas, Punjab and Haryana, Andhra Pradesh, Assam, West Bengal and Bihar had the lowest - the latter three states all being in Eastern India - a reversal of their position in Bardhan and Chatterjee and Sarkar and Paul's estimates. Uttar Pradesh fell within the medium poverty group. [*Bhatty, 1974: 301-307*]

Montek Ahluwalia [*1978(a)*] used National Sample Survey data deflated by the Consumer Price Index for Agricultural Labourers for his state level time series of poverty levels over the period from 1956-57 to 1973-74. As he has been criticised for his choice of start and end years we shall just take the ten year period ending in 1970-71. In common with established convention he used the Rs. 15.0 minima as his poverty line. Using this procedure he estimated that in 1960-61 an average of 42.0% of the rural population of India was living in poverty. The four poorest states - all with more than 50%

of their populations living in poverty were Orissa, Kerala, Tamil Nadu and Andhra Pradesh. At the other end of the spectrum, Punjab & Haryana and Assam had fewer than 30% of their population below the poverty line, followed by Gujarat and Rajasthan with just above that level. Uttar Pradesh with just under 40%, and at number ten out of fourteen states, was placed towards the lower end of the list. By 1970-71 West Bengal topped the list of poor states with more than 70% of its population so classified compared to a national average which had risen to 49%, followed by Orissa and Kerala - the two poorest in 1960-61. Punjab and Haryana remained at the lowest position for poverty, followed once again by Assam, but now with Uttar Pradesh having changed its position from tenth to twelfth and Andhra Pradesh from fourth to eleventh in the order of states by poverty level.

In addition to the raw percentages, Ahluwalia also used the Sen index. Using the latter, and fitting a linear time trend taking in all his observations, he concluded that only two states Assam and West Bengal showed a significant trend increase in poverty, while Andhra Pradesh and Tamil Nadu showed a trend decline.

As his intention was primarily to show the relationship between agricultal growth and poverty he regressed an index of agricultural production against poverty for each state. He found that six states (Kerala, Orissa, Punjab and Haryana, Tamil Nadu, Uttar Pradesh and West Bengal showed significant growth in output per head, yet none of these states showed a significant trend decline in the incidence of poverty (except for Tamil Nadu on the Sen Index) and West Bengal showed a significant trend increase. [*Ahluwalia, 1978(a): 312*]

These different results of state rankings by different authors illustrate the tremendous variations between authors. As Pramit Chaudhuri [*1978*] says:-

". . . enough has been said, perhaps to indicate that the findings are too dissimilar for us to draw very clearcut conclusions about the extent of poverty at the state level. Some states figure consistently as among the poorest in all the studies. However, no two studies include and exclude precisely the same states. The ranking order of states within the broad groups, 'rich' and 'poor', varies from study to study and from period to period. No two authors agree on the extent of poverty in the various states or on the extent to which the problem has worsened or improved within a certain period." [*Chaudhuri, 1978: 210*]

It is for such reasons that the type of state level study which forms the subject matter of this thesis is so important. As we see, from the work of other authors, Uttar Pradesh tends to appear as a medium to low poverty state, But this depends upon the use of an aggregate. In our work, we shall show that the different economic and social structures of the Western and Eastern Regions of UP have resulted in a wide variation in the extent, depth and nature of poverty in the two regions. It is only by looking in depth at the factors that give rise to poverty that there can be any hope of reaching meaningful conclusions with regard to its causes - which are far from uniform - and by implication of its remedies.

4. POVERTY THE PICTURE BROUGHT UP TO DATE

To bring the picture right up to date we conclude with a look at a pessimistic account of changes in the proportion of the rural population living in poverty which was provided V.M. Dandekar [*1986*], when he produced an updated account of the extent to which the projections of the Perspective Planning Division's 1962 projections had been met. His findings are illuminating, and make depressing reading, particularly in respect of the rural population. Taking the Rs. 15 minima, Dandekar estimated that in 1960-61 about one third of the rural population lived on diets inadequate in respect of calories. According to his interpretation of the National Sample Survey data, by

1971-72, 46 per cent of the rural population was below the poverty line, and it has been estimated that in 1983 44.4% of the rural population was below this level. "It is thus amply evident that the projections of the Perspective Planning Division have not only not been met but that the position with respect to the rural poor, at least, has worsened over the past twenty or so years", reports the author. [*Dandekar, 1986: A98*] What has gone wrong?

The first and most important point to be made is that, with the exception of a hard-core of destitution at the very bottom, which could only be tackled by measures specifically targeted at its alleviation, the PPD saw the main solution to poverty in the country as a whole as coming from growth in the economy in general. To what extent have the growth projections been met? In 1951, India had a population of 363.2 million. In 1985, the population was estimated to be 750.9 million. Expressing the Net Domestic Product at constant (1970-71) prices, it worked out at Rs. 167,980 million in 1951 and about Rs. 572,000 in 1985. Thus in the period of 34 years 1951-85 the population doubled while the NDP in real terms multiplied 3.4 times. During this period India became self-sufficient in foodgrains, and by 1981 was producing ample to provide its entire population with a diet adequate in calories. Theoretically at least, average per capita consumption should have been improving, even if its proportional distribution remained unchanged. [*Dandekar, 1986: A93*]

The explanation for why this has not been the case, despite a respectable growth performance of the economy as a whole, is to be found, according to Dandekar, in the differential performance of the organized and unorganized sectors of the economy, ie. extractive, manufacturing and service industries, compared to agriculture. The author found that during the period 1950-51 to 1982-83 the net

domestic product generated from within agriculture increased by 95%, whereas during the same period the net domestic product from the rest of the economy multiplied 4.6 times. There was therefore a huge differential in the growth rates of these two sectors of the economy. As a result the share of agriculture in the net domestic product fell from 58.7% in 1950-51 to 37.5% in 1982-83. This is a normal and desirable shift in the structure of the economy, identifiable historically in all those countries which have achieved economic development. However, the particularly worrying aspect of the Indian case is that there has not been a corresponding shift of population out of agriculture over this period. The proportion of workers dependent on agriculture, namely cultivators and agricultural labourers has remained virtually unchanged. It was 67.5% in 1951 and had only fallen by one percentage point to 66.5% in 1981. As a result the per capita net domestic product in the agricultural sector has remained more or less the same as it was 30 years ago. [*Dandekar, 1986: A94*]

This has important implications for income and consumption distribution and for poverty. Because the per capita net domestic product in the agricultural sector has remained unchanged there is no scope for increased consumption within that sector. Indeed this is the author's explanation of why, inspite of an increased production of foodgrains, and the availability of imports if needed, the per capita consumption of foodgrains in the economy has hardly increased over a period of 30 years and such a large proportion of the population remains malnourished. Despite the fact that the agricultural sector is in fact producing substantially more, the incomes generated within this sector are for a significant proportion of its population, so low, that they are unable to retain for home consumption, or to

purchase, adequate foodgrains to provide their families with even the minimum calorie requirements.

The overall conclusion to be drawn from this is that in terms of the number of rural people living below what is generally regarded as the "poverty line", and the depth of poverty, not a lot has changed in India over the past two or three decades, i.e. up to about 1985, despite the immense changes in organization and production brought about by the Green Revolution.

It is the intention of this thesis to add to the knowledge of why this should be the case. Taking UP as our study area we shall, in subsequent chapters attempt to demonstrate the contrasting dynamics of poverty generation in the prosperous Western Region with those in the stagnant Eastern Region.

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CHAPTER 2

THE MODE OF PRODUCTION AND THE CLASS STRUCTURE

1. THE MODE OF PRODUCTION

    1.1 THE FEUDAL MODE OF PRODUCTION

    1.2 THE CAPITALIST MODE OF PRODUCTION

2. THE CLASS STRUCTURE

3. CAPITALISM AND SEMI-FEUDALISM - THE CASE OF INDIA

4. THE MODE OF PRODUCTION IN WESTERN AND EASTERN U.P.

    REFERENCES

1. THE MODE OF PRODUCTION

The concept of a mode of production, and its usefulness in analysing the structure and direction of change in Indian agriculture in general, has come in for much debate, and a good deal of criticism, over the past couple of decades. In the introduction we stated our intention of using a mode of production approach as a way of analyzing the different processes by which poverty and inequality are generated in Western and Eastern UP. That being the case it is important to understand precisely what the concept means.

It is clear that where a mode of production is specified, its parameters must be very carefully defined, and the limitations of the approach clearly stated. Many of the problems associated with using the mode of production as an analytical tool have arisen because commentators have failed to appreciate these needs, and claimed too much in terms of their characterisation of Indian agriculture as either "capitalist" or "semi-feudal" on the basis of models which have quite frankly been underspecified and over-stretched.

It is clear from Marx's own writings, that the concept of a "mode of production" is absolutely central to any economic analysis which purports to use Marxian methodology. As he says, in the famous passage from the Preface to *"A Contribution to a Critique of Political Economy"*:-

> "The general conclusion at which I arrived and which, once reached *became the guiding principle of my studies* can be summarised as follows. In the social production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production. The totality of these relations of production constitutes the economic structure of society, the real foundation on which arises a legal and political superstructure and to which correspond definite forms of social consciousness. The *mode of production* of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that determines their existence, but their social existence that

> determines their consciousness. At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production or - this merely expresses the same thing in legal terms - with the property relations within the framework of which they have operated hitherto. From forms of development of the productive forces these relations turn into their fetters. Then begins an era of social revolution. The changes in the economic foundation lead sooner or later to the transformation of the whole immense superstructure."[*Marx, 1971*]

The central concept here is the "mode of production". It is evident from the quotation that one must agree with Hindess and Hirst when they state that "the different modes of production must be conceived as variant forms of the same general structure: the different possible combinations of a small number of elements define the concepts of the different possible modes of production." It follows that ". . . the difference between one mode of production and another is the effect of variation in the form of combination of the relations and forces of production . . ."[*Hindess and Hirst, 1975: 5*]

Central to the concept, and defining the particular mode of production, is therefore the specification of the relations and forces of production. In the process of production in society, men appear in certain relationships to one another. Among these production relations those associated with the ownership of the means of production occupy a crucial role and determine the forms in which economic surplus - the surplus over the consumption of producers and the replacement of means of production - is utilised. Corresponding to the different levels of development of social productive forces we observe different *relations of production*. An integrated complex of social relations and *forces of production* is called a *mode of production*. Within each mode we can distinugish certain classes on the basis of their role in the production, circulation and appropriation of the social product. [*Prabhat Patnaik, 1973: 198*]

This is most clearly explained by taking actual examples. Capitalist relations of production, for example, define a mode of appropriation of surplus-labour via commodity exchange. Capitalist production arises only when two different kinds of commodity possessors come face to face and into contact: owners of money, means of production and subsistence eager to increase the sum of values they possess and "free" labourers with nothing to sell but their labour-power. Capitalists buy means of production and items of personal consumption from each other. They buy labour power from labourers in exchange for wages. Labour power is therefore a commodity, which like any other is bought and sold. With their wages the labourers buy items of personal consumption from capitalists and must then sell their labour power for a further period in order to be able to buy further means of personal consumption. Appropriation of surplus-labour, and ultimately accumulation of capital, here depends on a difference between the value of labour, reflected in the wages paid, and the value which is actually created by means of that labour-power. Surplus labour takes the form of surplus-value over and above wages paid to the labourer,and is appropriated by the capitalist, since it is he who owns the means of production. If this were not so there would be no necessity for the labourers to obtain consumption via the sale of their labour power. Thus capitalist relations of production define a mode of appropriation of surplus-labour in the form of surplus-value, and cet. par. a social distribution of the means of production whereby capital is accumulated in the hands of a class of capitalists whereas the class of labourers possess only their labour power.

Whatever mode of production we look at, surplus-labour is a necessary element - what differs is the mode in which it is

appropriated. " It is the mode of appropriation of surplus-labour which governs the mode in which the social product is distributed among the agents of production. . . . a determinate set of productive forces is deducible from the concept of this mode of appropriation".[*Hindess & Hirst, 1975: 9*] By productive forces or more correctly "forces of production " is meant the "labour process in which a determinate raw material is transformed into a determinate product. 'The elementary factors of the labour-process are 1, the personal activity of man, i.e. work itself, 2, the subject of that work, and 3, its instruments' [*Marx, 1961: 178*]

Forces of production differ according to the manner in which these elements are combined into concrete forms of the production process. The concept of a particular mode of production is therefore "the concept of a determinate articulated combination of relations and forces of production".[*Hindess & Hirst, 1975: 9*]

In using the concept of a mode of production we must be aware, as Maurice Dobb has pointed out, that "no period of history, it is said, is ever made of whole cloth; and since all periods are complex admixtures of elements, it is a misleading simplification to label any section of the historical process with the title of a single element. A system like Capitalism may be spoken of abstractly as describing an aspect which in varying measure has characterized numerous periods of history."[*Dobb, 1963: 1*] But, stresses Dobb later, ". . save for comparatively brief intervals of transition, each historical period is moulded under the preponderating influence of a single, more or less homogenous economic form, and is to be characterized according to the predominant type of socio-economic relationship . . . Our chief interest will not lie in the first appearance of some new economic form. Nor will the mere appearance of it justify a description of

the succeeding period by a new name. Of much greater significance will be the stage when the new form has grown to proportions which enable it to place its imprint on the whole society and to exert a major influence in moulding the trend of development."[*Dobb, 1963: 11*]

Implicit in this statement is the idea of a social formation, defined as a "concrete combination of different modes of production organised under the dominace of one of them - the purport of the concept of social formation is precisely to underline the plurality and heterogeneity of possible modes of production within any given historical and social totality."[*Anderson, 1974: 22*] As we shall indicate later, such a concept has a good deal of relevance to the complex reality of Western and Eastern UP.

2. THE FEUDAL MODE OF PRODUCTION

In our own work we shall be concerned with the capitalist mode of production in respect of Western UP and a "semi-feudal" mode of production in respect of the Eastern Region. This latter concept is not without difficulty. Not only has its applicability to Indian agriculture been disputed by some analysts (see the survey article by Alice Thorner [*1982*]), but it is a recent addition to the classic catalogue of modes of production as specified by Marx.

Marx's own work was overwhelmingly concerned with the capitalist mode of production, and it was only in his unfinished Volume 3 of Capital that he began to deal in any depth with pre-capitalist modes of production, and then only in their context as precursors of the capitalist mode. Marx himself identified in varying degrees of detail, the Ancient, Slave, Asiatic (much disputed by later writers) and the Feudal Modes of Production. [*Marx, 1969: Ch.XLVII*] Because of the extensive use we shall be making of the concept of a semi-feudal mode of production it is important to understand something of the

feudal mode of production as specified by Marx, and later analysts.

Of all the precapitalist modes of production. it is Feudalism which has received most attention; its defining characteristics generating much controversy. As Dobb has said ". . . in attaching a definite meaning, whether explicitly or implicitly, to a term like Feudalism or Capitalism, one is ipso facto adopting a principle of classification to be applied to one's selection and assembly of historical events. . . . Since classification must necessarily preceed and form the groundwork for analysis, it follows that, as soon as one passes from description to analysis, the definitions one has adopted must have a crucial influence on the result."[*Dobb, 1963: 35*] Feudalism was the dominant mode of production in Europe during the early Middle Ages. Agriculture was the basis of economic life; surplus product was appropriated from direct producers, who possessed their means of production, through politico-legal compulsion by a class of landlords; the state acted in the interests of these landlords. [*Patnaik, 1973: 198*] "In Feudalism the lord stood in relation to the serf as state to subject, seignorial power was state power writ small, and serfdom was the subjection of the serf to the state in the person of the lord. Serfdom was a legal status and it existed insofar as it was politically enforced - it was a form of political subordination which provided the basis for exploitation."[*Hindess & Hirst, 1975: 224*] This definition lays great stress upon the political and juridical aspects of feudalism. By contrast, Dobb's definition lays its emphasis "not in the juridical relation between vassal and sovereign, nor in the relation between production and the destination of the product, but in the relation between the direct producer (whether he be artisan in some workshop or peasant cultivator on the land) and his immediate superior

or overlord and in the socio-economic content of the obligation which connects them . . . (characterising) feudalism primarily as a 'mode of production' . . . it will be virtually identical with what we generally mean by serfdom: an obligation laid on the producer by force and independently of his own volition to fulfil certain economic demands of an overlord, whether these demands take the form of services to be performed or of dues to be paid in money or in kind - of work . . ."[*Dobb, 1963: 35-36*] Rodney Hilton took a similar point of view when he described the essence of the Feudal Mode of Production in the Marxist sense as "the exploitative relationship between landowners and subordinated peasants, in which the surplus beyond subsistence of the latter, whether in direct labour or in rent in kind or money, is transferred under coercive sanction to the former. This relationship is termed 'serfdom' a term which causes some difficulty."[*Hilton, 1976: 30*] It is this mode of production definition of Feudalism which we shall adopt in this work. Of course, Feudalism can strictly only be applied to a period of European history between the 9th and 14th centuries, and even by the late 12th century labour service had declined to such an extent that serfdom proper had largely ceased to exist in Western Europe.[*Hilton, 1976: 14*]

That Feudalism has ever existed in Asia, and in India in particular, is currently the subject of fierce debate. [*Byres, 1985*] Harbans Mukhia [*1981*] asserts that Feudalism never existed in pre-colonial India. "He does so on the grounds, essentially, that while medieval Europe had as its *differentia specifica* the structured dependence of the whole peasantry upon the lords, pre-colonial Indian society was characterised by self-dependent or free peasant production."*Byres, 1985: 2*]. This is a view which is very much open

to question. As we shall show in Chapter 3, peasant production in what is now the Eastern Region of Uttar Pradesh, was during the Mughal and British period subject to a very structured hierarchy of intermediaries who exerted what in essence amounted to feudal domination of the peasantry. Vestiges of this feudal system exist to this day in the region, to the extent that we have characterised the dominant mode of production as being "semi-feudal".

As has already been stated, central to defining a particular mode of production is the need to specify the means by which the surplus-product is extracted. In the case of Feudalism it is by means of feudal rent. Pre-capitalist conditions of production prevent the separation of the labourer from the means of production.

> "Given the non-separation of the direct producer, property remains at the level of a political-legal relation, it does not take the form of the conversion of 'property' into effective possession, that is, the subsumption of the direct producer under exploitative relations of production. . . . Marx argues that when this separation does not exist, where there is no specific economic mechanism of exploitation, exploitation must be secured by non-economic means and that this exploitation has non-economic, political or ideological conditions of existence. Political or ideological forms predominate, they secure the conditions of exploitation that cannot be secured in a system of production where the direct producer is able to set the means of production in motion independently of the exploiter."[*Hindess & Hirst, 1975: 226*]

The possibility of appropriating the surplus-product is determined by the level and the efficiency of the coercive means available. Politics creates the different forms of title, of subject and the methods of coercion. It is *the particular features of the apparatus of political domination* which differentiate the various pre-capitalist "modes of exploitation of surplus-labour" and not the forms of production to which they are applied.

Hindess and Hirst have elaborated upon Marx's definition of the feudal mode of production and attempted to abstract the economic conditions for its existence. According to them a 'feudal' mode of

production exists if the direct producers are subsumed under specifically feudal relations of production. What form do these take? As we have already stated, the surplus-product is expropriated by means of feudal rent - but this rent can take several forms - it may be rent-in-kind, labour service or money. [*Dobb, 1963: 35*] The concept of feudal rent supposes a feudal landlord class, with legal title to the land. That title as a right of exclusion enables the landlord to exclude the direct producers from the use of the land if the legal and coercive means of state power are available to act on behalf of his title. The direct producers are therefore forced to pay rent for the right to use the land, to produce their own means of subsistence. Through various forms of rent the landlord is able to control the direct producers by controlling (i) the whole economy of the land to which he has title; (ii) crucial elements of the means of production and therefore of the access to subsistence of the direct producer; and (iii) the reproduction of the direct producers' means of production. [*Hindess & Hirst, 1975: 236*]

How do the forms of rent provide mechanisms of control and subsumption which enable the landlord to exploit the direct producer? The Feudal Mode of Production entails the possibility of *labour rent* which was seen by Marx as the key element determining this Mode of Production.

> "The specific economic form in which unpaid surplus labour is pumped out of the direct producers determines the relationship of domination and servitude, as this grows directly out of production itself and reacts back on it in turn as a determinant. On this is based the entire configuration of the economic community arising from the actual relations of production, and hence also its specific political form. It is in each case the direct relationship of the owners of the conditions of production to the immediate producers - a relationship whose particular form naturally corresponds always to a certain level of development of the type and manner of labour, and hence to its social productive power - in which we find the innermost secret, the hidden basis of the entire social edifice, and hence also the political form of the relationship of sovereignty and dependence, in short the

specific form of the state in each case."[*1969: 927*]

". . . here as always . . . it is in the interest of the dominant section of society to sanctify the existing situation as a law and to fix the limits given by custom and tradition as legal ones . . . Now since the form of this surplus labour, statute-labour depends on the undeveloped condition of all labour's social and productive powers, on the crudity of the mode of labour itself, it is natural for only a far smaller aliquot part of the direct producers' total labour to be confiscated from them than in more developed modes of production, and in the capitalist mode of production in particular."[*1969: 929*]

I believe that it is to be concluded from this quotation that Marx saw serfdom, in the form of labour rent, as the fundamental determining characteristic of the Feudal Mode of Production, as was subsequently stated by Dobb and Hilton, and outlined above. Labour rent involves the division of the landlord's land into a portion which reproduces the labourer and a portion on which the surplus-product is produced. Labour-rent makes possible *demesne* production: the demesne is the land on which the rent for non-demesne land is rendered in the form of labour service. The existence of the demesne gives rise to a form of production under the control of the landlord: here the landlord functions as the agent of co-ordination of the process of production. This provides the possibility of control of the whole manorial economy. The proportion of demesne land to rented land and the level of labour service obligations determine the balance of necessary-labour and surplus-labour. The balances demesne land/rented land, necessary-labour/surplus-labour, control the whole organization of the economy of the 'manor'. These balances determine the conditions of production on the land rented by the direct producers - an extreme example would be where the proportion of demesne land is such that the rented plots of the direct producers are insufficient to produce the necessary means of subsistence, here the labour-rent of the tenant will be supplemented by wage-labour.

But labour rent, was in fact superseded in Medieval Western

Europe by rent in kind and money rent, both of which entailed more complex forms of economic coercion. The landlord can control the reproduction of the direct producers' own units of production through the size of the units let, the form of the tenancy and the level of the rent. (a) By controlling the size of the units let (even if there is no demesne) the landlord can ensure that the units of tenancy do not correspond to the units of production, that the units let cannot in and of themselves produce and support all the means of production that are necessary. The direct producer is thereby placed in a contradictory position if he rents the land for rent-in-kind or a money-rent. He is required to render a definite rent which can be expressed as a portion of his product - this supposes he has the means to produce this rent. Yet the very conditions of his tenancy place his capacity to render that rent under the control of the landlord - the tenant is not in fact an independent producer. (b) By controlling the form of the tenancy, in particular the conditions of re-tenancy, by varying the size of the units let and re-let, the landlord can control the conditions of reproduction of individual direct producers. By using these measures the landlord can prevent the development of holdings large enough to contain all the necessary means of production, can prevent autonomous exchanges between tenants which redistribute the land, and can render void any attempts by the larger and more enterprising tenants to increase the size of their holdings and thereby attain a measure of autonomy. (c) The landlord may control other essential means of production other than land for cultivation; into this class come pasture land and water. By controlling the letting of pasture or determining the number of animals allowed to graze on common pasture the landlord can control a vital means of production of individual tenants, he can limit or

promote their wealth, and they have no guarantee that their pasture-rights or livestock holdings are secure beyond an .immediate period. [*Hindess & Hirst, 1975: 239*]

Given the landlord's receipt of surplus-product in the form of rent and the fact that the landlord is the only agent in the unit of landholding whose conditions of possession are reasonably secure, then he can amass and control certain means of production which are beyond the capacity of any tenant to produce or which it is not worthwhile for him to accumulate the resources to produce. These means of production may be vital elements in the process of production which it is necessary that every tenant have access to. Examples of such means of production are mills and large-scale drainage works. The ownership of such means enables the landlord to dominate the whole economy of his land and to levy additional rents for the right to use or to have access to these means. [*Hindess & Hirst, 1975: 239-249*]

In addition to the landlord and the tenant/labourer there may be landless labourers. Both the landlord and the tenant may hire wage-labour; the landlord to supplement or to replace labour-service on demesne land, the labourer to supplement the labour-power of his family. If the tenant uses wage-labour not to supplement but to *replace* family labour then he becomes an exploiter who pays ground-rent rather than an exploited direct producer. When the tenant relies principally upon wage-labour he can no longer be considered as a feudal tenant but as a proto-capitalist or capitalist farmer. Feudal relations of production do not prohibit landlessness and wage-labour. In addition to providing necessary supplementary labour they actually re-enforce these relations.[Hindess & Hirst, 1975: 245]

As we shall show subsequently, although the classical form of labour rent with demesne production does not exist in Eastern UP,

there do exist variations on this theme including unpaid labour services to landlords. Rent in kind is widespread in the region as a result of share-cropping arrangements. In addition, exploitative wage, debt and tenancy contracts, constitute a mode of production in which the direct producer is subordinated to the landlord to the extent that it constitutes a situation which is most fittingly described as semi-feudal.

1.2. THE CAPITALIST MODE OF PRODUCTION

By contrast with this situation, the capitalist mode of production in agriculture "presupposes the expropriation of the rural workers from the soil and their subjection to a capitalist who pursues agriculture for the sake of profit."[*Marx, 1969: 751*] As a result "the actual cultivators are wage-labourers, employed by a capitalist, the farmer, who pursues agriculture simply as a particular field of exploitation of capital, as an investment of his capital in a particular sphere of production. At certain specified dates, the farmer-capitalist pays the landowner, the proprietor of the land he exploits, a contractually fixed sum of money (just like the interest fixed for the borrower of money capital), for the permission to employ his capital in this particular field of production. This sum of money is known as ground rent . . ."[*Marx, 1969, 755*] In theoretical terms this analytical distinction is crucial. It is quite separate from the profit that the capitalist farmer derives from cultivation, and is know as capitalist ground rent. "Rent has now been transformed from the normal form of surplus-value and surplus labour into an excess over and above profit. . . . it is now normal for this capitalist farmer to produce the agricultural product as a commodity, and that while formerly only the excess over his means of subsistence was transformed into a commodity, now a relatively minute

part of these commodities is directly transformed into his own means of subsistence. It is no longer land, but capital that has now directly subsumed even agricultural labour under itself and its productivity." [*Marx, 1969: 936*]

In the subsequent work we are not suggesting that Capitalism, in the classic sense referred to by Marx is fully developed in Western UP agriculture, but as we shall show later in this chapter, and demonstrate in subsequent chapters, it is the dominant mode of production in that region.

Marx took the conflict of interests betweeen capitalists owning the means of production on the one hand, and a propertyless proletariat forced to sell its labour power on the other, and used it as the linchpin of his analysis of industrial society. Central to his thesis was the relative resource position of the exploiting class and the exploited class. It was precisely because the means of production was concentrated in the hands of the capitalist class that it was in a position to expropriate the surplus labour of the exploited labourer class and invest in capital accumulation.

Marx himself was primarily concerned with industrial society and only incidentally referred to agricultural economies. Subsequent analysts in the Marxist tradition, notably Lenin [1964] applied the same principles as had Marx in analysing the class structure of industrial society to the rather less clearly defined class structures of agricultural society.

Much empirical, as well as theoretical work on this theme was undertaken by Lenin within the context of the actual situation in the Russian countryside before the Revolution. When looking at Lenin's work on agricultural capitalism it must be squarely placed within its political context. During the late 19th century the debate among

Marxist theoreticians and strategists concerned the "agrarian question" which "derived from the political problem of how to capture power in countries which continued to have large peasantries."[*Byres, 1986: xi*] Lenin's famous work, "The Development of Capitalism in Russia", first published in 1899, was essentially an attempt to refute the arguments of the Narodniks who did not believe that capitalism could or should develop in the Russian countryside. Using the Zemstvo statistics Lenin set out to demonstrate that not only was it possible for capitalism to develop in Russia, but that it was actually occurring. In the process he formulated in a more usable form many of Marx's theoretical propositions on the development of capitalism in agriculture. Lenin's writings were concerned specifically with the development of capitalism in Russia. However, he formulated many important insights which have relevance to agricultural societies in general, and indeed, have very great application to the prevailing conditions in India. One of his most valuable contributions concerned an analysis of the differentiation of the peasantry. Until Lenin's work, the peasantry had been widely viewed as a homogenous group with a community of interests fundamentally opposed to capitalism. On the contrary, said Lenin, the peasantry are not antagonistic to capitalism, but "its deepest and most durable foundation".[*Lenin, 1964: 173*]

Lenin identified many "economic contradictions" the sum total of which constituted the "differentiation of the peasantry". "This process signifies the utter dissolution of the old, patriarchal peasantry and the creation of new types of rural inhabitants . . . types that are the basis of a society in which commodity economy and capitalist production prevail. [*Lenin, 1964, 173*]

For Lenin, differentiation of the peasantry and capitalist

development were synonomous. Differentiation of the peasantry, which develops at the expense of the 'middle' peasantry,, creates two new types of of rural inhabitants. These are the rural bourgeoisie (chiefly petty bourgeousie) and the rural proletariat - a class of commodity producers in agriculture and a class of agricultural wage-workers."[*Lenin, 1964: 176*]

The rural bourgeoisie or prosperous peasantry constituted those farms which were economically strong, completely independent and were engaged in commercial agriculture in all its diverse forms. One stratum was mainly involved in agricultural production. It would purchase or lease in land to increase agricultural production for the market. It was overwhelmingly dependent on wage labour, which was proportionately more important in production than family labour. It invested surplus cash in the purchase of land, implements and machinery and in farm improvements and expanded reproduction. Although numerically small - leass than 20% of peasant households, they owned 60-70 per cent of all the purchased land, controlled 50-80 per cent of all leased land and owned more than 50% of the total number of horses. They were the main employers of peasant labour, while also being the owners of industrial and commercial enterprises and improved tools. [*Rahman, 1986: 17*]

At the other extreme was the rural proletariat, the class of hired workers some of whom rented tiny allotments and some of whom were landless. They owned either just one horse or had no horse at all. Their farms were in a state of complete collapse. The farmhand, day-labourer, the unskilled labourer and the construction or other worker also fell into this new type. Almost half of the rural households belonged to this type. They were, however, not 'free', landless, wage labour in the strict sense of the term. Since Lenin

argued that capitalism penetrates into agriculture very slowly, the agricultural proletariat with a small amount of allotment land was compatible with the specific feature of agriculture not only of Russia but also of all the capitalistic countries of Europe. [*Lenin, 1964: 176*]

Lenin identified the intermediary link between the post-Reform types of peasantry as the *middle peasantry*. It is distinguished by the least development of commodity production. The independent cultivator of this category of peasant covers his maintenance in perhaps only the best years and under particularly favourable conditions, and that is why his position is an extremely precarious one. In the majority of cases middle peasants cannot make ends meet without resorting to loans to be repaid by labour service, etc. Every crop failure flings masses of the middle peasants into the ranks of the proletariat. "In its social relations this group fluctuates between the top group, towards which it gravitates but which only a small minority of lucky ones succeed in entering, and the bottom group, into which it is pushed by the whole course of social evolution".[*Lenin, 1964: 181*] They comprised nearly 30% of the peasant population, with the least development of the elements of commodity economy. They were thus a dying stratum, occupying an extremely vulnerable position They were the most unstable group and their apparent economic independence, was according to Lenin just a myth. [*Rahman, 1986: 18*]

The fundamental characteristics of these peasant classes can be briefly summarised as follows:-

1. Poor peasants cultivate little land, and most significantly, cannot cover their needs with income from farming. As a result they have to hire themselves out as workers on the farms of rich peasants.

2. Middle peasants succeed in covering their annual expenditure by income from land in good years. Very vulnerable.

3. Well-to-do or Rich Peasants Hold more land than a farm family can cultivate with its own labour, which compels them to resort to the hiring in of workers - drawn from the poor peasant class. They are also "far better supplied with implements than poor and even the middle peasantry and employ a farming technique much above the average" made possible as a result of their larger farm size, better and more plentiful supply of implements and greater availability of financial resources, etc. As a result they are in a position to reap economies of scale and hence produce at a lower unit cost than poor or middle peasants. Their farming is commercial, ie. oriented towards producing a commodity for sale on the market. These last two factors will fuel their desire to acquire more and more land, ousting poor and middle peasants in the process, and resulting in the polarisation of the agricultural class structure into a class of capitalist commodity producers on the one hand and of landless labourers on the other forced to sell their labour power on the market as a commodity.

4. Agricultural Labourers are drawn from peasants who cultivate no land, or who cultivale little: "they do not differ much in economic status . . .both groups serve as farm labourers for their fellow villagers, or engage in outside, mainly agricultural employment, i.e. belong to the *rural proletariat*." In addition to selling their labour-power the rural proletariat obtain an income from leasing their small plots of land to larger landholders. The formation of this class of regular farm labourers and day labourers is, maintains Lenin, "an essential condition for the existence of the rich peasantry.[*Lenin, 1964: 71-79*]

The process of differentiation was seen by Lenin to facilitate a rapid growth in the home market. Indeed the rural proletariat depended on the market for its survival. A market for personal consumption goods flourished as they bought consumer goods. Although their level of consumption was less than that of the middle peasantry the proportion of goods consumed purchased on the market was much higher. The rural bourgeoisie, on the other hand, bought means of production and consumed industrial goods as well, which were mostly of urban origin.

Lenin saw the growth of the home market as accelerating the end of the old system of natural economy. However, he also saw that usury and

labour service as two retarding factors delaying the dissolution of the peasantry and hence the process of differentiation - and by implication capitalist development in agriculture. [*Rahman, 1986: 18*]

Lenin's formulation has not been without its critics, both within his lifetime and subsequently. Despite his use of actual Zemstvo statistics which appeared to indicate all the signs of an ever-increasing pace of capitalism in the countryside, the Russian Populists minimised the significance of these developments. The debate continued right up to 1917. The 1917-21 Revolution and Civil War led to considerable levelling within the Russian villages and the middle peasantry, instead of being swept away (as predicted by Lenin) showed some resistance to change. [*Rahman, 1986: 19*]

Encouraged by the resistance shown by the middle peasantry a group of rural researchers emerged in the 1920's. They became known as the Organization and Production School, and their most important representative was A.V. Chayanov, whose book "The Theory of Peasant Economy", published in 1926 has since become a classic. In contrast to Lenin's approach, Chayanov and his school viewed the differentiation of the peasantry primarily as a demographic phenomenon.

Differention among the peasantry was seen as dependent upon relative family size and composition rather than the result of differing economic circumstances. It was argued that farm size tended to follow a cycle coincident with the peasant family life cycle, increasing as the family members matured into workers and declining as the family aged and disintegrated with the formation of new families.

Chayanov coined the term family labour farm to describe the type of peasant agriculture he sought to analyse. This was a production

and consumption unit which made its living from the land, sometimes with supplementary non-agricultural income (e.g. the seasonal non-agricultural work, i.e. crafts and trade) by utilizing its own family labour (with no hired labour). For such a unit labour was not a variable cost but a fixed cost. Its agricultural activities were aimed at providing a customary or socially accepted minimum level of subsistence rather than profit unlike capitalist farms. [*Chayanov, 1966: 5*]

Since the family labour farm was the basic unit of production, the concomitant family labour product was the only possible category of income for a peasant or artisan family labour unit. A peasant family would work for as long and as hard as was required to earn its labour product or labour income needed to obtain the minimum subsistence. Having once attained it, its labour input would begin to drop sharply. This is because the work on the land with only primitive technology was a physically laborious and tiring job - "drudgery" was Chayanov's term, and peasants would not continue doing it a moment longer than they had to. But conversely, they continued doing it for as long as they had to, even if the marginal return for their labour was negative. Such a peasant unit would not therefore respond to diminishing marginal returns for labour in the way that a capitalist would, i.e. by ceasing production at the point were marginal product equalled marginal cost.

The work effort made by each peasant family would depend on the consumption demands made by members of the family. This would result in an equilibrium known as the labour consumer balance. Therefore the labour consumer balance was not only determined by the drudgery, but also the size and composition of the family, proportional to its members able to work - the consumer worker ratio.

When a family was composed of few adults and a lot of small children its labour/consumer balance would be adverse. In that case, it would have a large number of dpendents whose consumption needs could not be balanced by their capacity to produce. The amount of drudgery required by the working adults would be large, and they would be prepared to work well beyond the point at which diminishing marginal returns to labour commenced. When the children grew up and could contribute productively the labour-consumer balance would improve and at a certain point become positive with a consequent reduction in labour effort or drudgery all round.

When the children grew up and married and left to set up their own farms the amount of labour effort to provide subsistence for the aging parents left on their own and their capacity to undertake drudgery would fall - as would the total farm income. Meanwhile on the new farms created by the splitting of the family the demographic cycle, and along with it the cycle of peasant family income rising, would start again.

Based on arguments such as that above, Chayanov and his school attributed the differences in the economic productivity of farms, resource distribution and many other such differences to the forces of demography (mainly the family size). Hence the name - demographbic differentiation. This theory specified that the demographic cycle would ensure that no peasant family could obtain a permanent position of superiority over others, although it might do so temporarily. The observed variations or inequality in farm size at a point of time were to be explained largely by variations in family size. That meant that there was effectively very little or no inequality of landholding among different farms.

Chayanov's theory was formulated specifically with regard to the

circumstances in Russia in which the repartitional commune or "mir" was a unique feature of agrarian social structure.. This did mean that to some extent farms could expand and contract on the basis of demographic needs. But he and his supporters totally overlooked the concomitant permanent economic differentiation which was so much a feature of Lenin's schema.

Despite our own use of the Marxist mode of production format, and hence of a class structure which draws much from Lenin's analysis, it is worthwhile to include this brief account of Chayanov's work, as it has had a profound influence upon scholars of agricultural economics. Even if they have disagreed with his demographic differentiation schema, Chayonov's focus on the actual workings of the peasant farm have provided many valuable insights which have since been incorporated into agricultural economics in general. In our own work, in Chapter 8 we do indeed tentatively suggest that there is at work in Eastern UP a type of demographic differentiation among the very poorest, by which those with many dependent children, or elderly widows on their own, are pushed to the bottom of the pile of already poor people. At the same time, it is certainly the case, as we shall show in Chapter 6, that those with least resources push their labour effort, or drudgery, well beyond the point where marginal labour productivity begins to decline.

2. THE CLASS STRUCTURE

The whole question of the differentiation of the peasantry, and the ensuing class structure has been fundamental to any analysis of agricultural development which purports to have a Marxist framework. Lenin was writing within the context of an agricultural environment which had seen the abolition of serfdom, and hence the emancipation of

the peasantry in 1861. By the time he was writing he believed it to be in the process of transition to a capitalist mode of production. Mao Zedong, on the other hand, was writing about an agriculture which was only just emerging from feudalism, and exhibited many pre-capitalist features.

As a result, while Mao Zedong[*1954*] used fundamentally the same class structure as Lenin to analyse the differentiation of the peasantry in the Chinese countryside he included elements which took account of its recent links with feudalism. He added the class of landlords, whom he defined as a person who possessed land (regardless of the amount), performed none, or only incidental labour, and relied solely upon exploitation for his living, which was principally based upon the collection of land rents from his tenants. Furthermore, in Mao Zedong's analyis the rich peasants, while generally possessing land, may also rent in all their land from others, and while as in Lenin's examples they exploit the labour of others via hiring in of labour, they may also rent a part of their land to others and practise exploitation by collecting rent, or, they may lend money on the side or engage in business or small industry. Some of China's rich peasants, wrote Mao, perform their own labour, without hiring help, but exploit the peasants by means of land rents and loan interests. The situation of the middle and poor peasants was defined in a broadly similar way to that of Lenin, with the addition that renting in of land figured more prominently for both classes. [*Mao Zedong, 1954*]

Utsa Patnaik [*1976*] took Mao Zedong's analysis a step further and attempted to derive from it rigorous analytical criteria by which to differentiate the classes in Indian agriculture. Working on the assumption that the degree to which a household exploits the labour of others either through hiring in of labour or receipt of rents or

hires out its labour and/or pays rent and is thus exploited by others will also reflect the underlying resource position of that household, she formulated a concept called the labour exploitation ratio E. This is expressed as follows_

$$E = \frac{x}{y} = \frac{\text{net use of outside labour } a + b}{\text{family labour days}}$$

where a = net labour days hired in minus labour days hired out

and b = net labour days taken through rent minus labour days given through rent.

The higher the ratio of x to y the more likely is the peasant to belong to an exploiting class, such as rich peasant in the case of a high 'a' component, or landlord, in the case of a high 'b' component. Obversely, the lower the ratio of x to y the more likely is the peasant to belong to an exploited class such as poor peasant in the case of a high 'y' component, or landless labourer in the case of a high and negative 'x' component.

On this basis, and following closely Mao Zedong's formulation Patnaik [*1976*] identified seven categories of households making up the agricultural class structure in India, and covering all the combinations of possible class structure which may be found in either the semi-feudal or capitalist mode of production. These are set out below.

1. $E \to \infty$ in which 'x' is positive and very high and 'y' is zero, identified both "the big land-owner of a feudal type and capitalist, distinguished from peasants by the fact that family members do not perform manual labour in any major farm operations. The value of 'y' is therefore zero. They rely entirely on the labour of others, whether through direct labour hiring - predominance of the 'a' component defining the capitalist type - or indirectly with a predominance of the 'b' component, rent extraction, defining the still "feudal" type of landlord. This category constitutes the large scale appropriators of surplus (whether in the form of labour, product, or value) in agriculture.

2. $E \geq +1$ in which 'x' is positive and high, 'y' is positive, but $x \geq y$. This formulation defines the top stratum of the

peasantry, the rich peasants. They perform some manual work in major farm operations and are therefore distinguished from landlords and capitalists in having some positive value of 'y'. But their resource position per capita is so favourable that appropriation of others' labour whether directly or indirectly is at least as important as family labour in cultivation, ('x' is not only positive, but at least equals and usually exceeds 'y'). Depending on whether labour-hiring ('a' component) or rent ('b' component) predominates in the high positive 'x' value, we may distinguish between a proto-bourgeois and a proto-landlord stratum, respectively, within the rich peasantry. The rich peasantry is thus also an exploiting, surplus appropriating class.

3. The middle peasantry is primarily self-employed, since on average its resource position per capita is such as to just employ family labour adequately and provide a livelihood at a customary subsistence level. However, the middle peasantry has a dual character. It may be either a net exploiter of others labour or it may be exploited itself - i.e. 'x' may be either positive or negative. In both cases, self-employment is more important, i.e. 'y' exceeds the absolute value of 'x'. It is therefore necessary to make a sub-classification within this large category, depending on the sign of 'x'.

a. Upper middle peasants in which $+1 > E > 0$, and where 'x' is positive but small, 'y' is positive, but $x < y$. These peasants are net exploiters of others' labour so that 'x' is positive and 'E' is positive. Their holdings have just crossed the subsistence barrier and can generate small retainable surpluses through small-scale exploitation.

b. Lower middle peasants in which $0 \geq E > -1$, and where 'x' is zero or negative but small, and 'y' is positive $|x| < y$. Lower middle peasants are therefore those who do not exploit any labour at all, net, so that 'x' is zero and 'E' is negative. Lower middle peasants typically are still constrained by a struggle to reach subsistence, either just manage to break even through self-employment or, more commonly, must supplement inadequate income from own resources by working to a small degree for others.

4. Poor peasants with $E < -1$, and where 'x' is zero and high, and 'y' positive, therefore $|x| < y$. The per capita resource position of the poor peasant is so bad as to necessitate working mainly for others in order to obtain a subsistence - whether directly through hiring out labour for wages or indirectly through leasing in land even on high rents, or as a combination of the two, so 'x' has a high negative value. Since poor peasants operate some land, whether owned or rented, there is a positive value of 'y' family labour days in cultivation, but working for others is at least as important (so that the absolute value of 'x' exceeds 'x' or at best equals it. If the 'a' component - hiring out, accounts for most of the 'x' value, the poor peasant is basically an agricultural labourer but also cultivating some land. If the 'b' component - rent payment, predominates then the poor peasant is basically a petty tenant.

Typically the poor peasants cannot make ends meet and have to depress consumption standards below customary levels.

5. Full-time labourers with E → ∞, and in which 'x' is negative and very high, and 'y' is zero. The full-time labourer does not operate any land at all, so that 'y' is zero. He is entirely or mainly dependent on hiring out his labour for wages in order to maintain a subsistence, so that 'x' has a high negative value. (Some full-time labourers may own a small parcel of land which they lease out; however, the labour equivalent of the rent received or positive 'b' component is not large enough to balance or outweigh the negative 'a' component on account of hiring out.) Like the poor peasant, the full-time labourer seldom achieves customary level of subsistence and moreover usually faces much greater uncertainty than even poor peasants do in obtaining the bare necessities for survival. [*Patnaik, 1976: 82-101*]

In later work [*Patnaik, 1987, 1988*] she modified her class schema, renaming the upper and middle peasantry as respectively middle peasants and small peasants, although their defnining characteristics and value of E remained the same. [*Patnaik, 1988: 322*]

Patnaik's work has not been without its critics, however, Venkatesh Athreya, et. al.[*1987*] applied a modified version of Patnaik's labour exploitation criterion to data from Tiruchy District in Tamil Nadu, along with their own method of identification of classes which depended upon estimating the size of the agricultural surplus over subsistence. Comparing the two methods they concluded that Patnaik's criteria was a less useful method of differentiating the classes than their own. However, Patnaik countered their criticism because the authors' technique of omitting the rental term when applying the index had in her opinion rendered their results suspect, particularly in view of the widespread incidence of tenancy in the district. At the same time she considered their own methodology to be questionable: "What Athreya et al actually do . . . appears to us to bear a somewhat tenuous relationship to a surplus criterion for their approach is not to apply the usually understood concept of economic surplus. Rather, their approach is an amalgam of

the 'poverty' perspective using a nutritional norm, and an almost Physiocratic view of the centrality of grain production and hence of grain deficit."[*Patnaik, 1988: 326*]

Looked at from the point of view of the theoretical Marxist analysis of class, then it is quite clear that both the capacity to generate a surplus, and concomitantly, whether there is net exploitation of labour or labour is itself exploited are both fundamental to identifying class membership. However, I would tend to agree with Patnaik in that the labour exploitation criteria is analytically superior insofar as it is firmly anchored in the actual relations of production which are ultimately the defining characteristics of class in the Marxist sense. By simply using a nutrional norm and calculating surplus in terms of grain in such a concrete way, Arthreya, et al. have overlooked the significance of surplus in the Marxist sense - i.e. the extent to which it is appropriated within the context of production relations.

Patnaik's work on class is very important in the Indian context because she attempted to develop a set of concepts which incorporated some of the fundamental principles of Marxist class identification in such a way that they could be applied empirically to data. This she did to data for Haryana [*Patnaik, 1988*] and reached the conclusion that the frequently used size of holding categories are a very imperfect way of identifying a household's class, when compared with the labour exploitation criteria.

I would agree with this, and although in the subsequent chapters extensive use has been made of data classified by size of holding, there is an awareness that class identification is far more widely based. For this reason a great number of indicators have been used in our own attempt to build up a picture of the class structures of

Western and Eastern UP, ranging from size of holding, leasing status, irrigation and capital inputs, the value of assets, and where available, the extent of hiring in and out of labour, output, yields and incomes.

3. CAPITALISM AND SEMI-FEUDALISM - THE CASE OF INDIA

Such formulations as that of Utsa Patnaik allow us, if the data are available to provide a comprehensive categorisation of the classes to be found in Indian Agriculture, but this still leaves open the question of the way in which these classes are combined and hence the mode of production. It has become clear, from the work of Lenin and Mao Zedong that it is much less easy to define a clear cut mode of production in agriculture than is the case for industry. It is possible for pre-capitalist features of exploitation to co-exist alongside those which clearly point towards a transition towards capitalism. This is nowhere more true than in the case of India, and as a result has resulted in the extensive and sometimes rarified debate on the mode of production mentioned at the beginning of this chapter.

The debate has many facets, ranging from attempts to identify the mode of production in Colonial India, to identification of the predominant mode of production in contemporary Indian agriculture. Along the way it takes in many of the theoretical issues concerning the identification of the key elements of feudalism and capitalism that we have already dealt with together with considerations of class and class structure. It is that particular area of the debate concerned with the mode of production in Indian Agriculture since Independence that concerns us here, as it provides a context from which to view the situation in Western and Eastern UP.

S.C. Gupta[*1962*] contributed a couple of articles in which he made an estimate of capitalist farming during the early 1950's. Using the Farm Management studies he examined the concentration of hired labour on larger farms, finding that in Uttar Pradesh on farms of 20 acres and above hired labour exceeded the use of farm family labour. Extrapolating his method to the 1953-1954 Census of Landholding for India, and taking as his cut-off point he estimated that only about 6% of holdings in India were Capitalist, although they covered 30% of total area. Kotovsky [*1964*] also produced estimates that 30% of the land in India was cultivated predominantly by hired labour. On this basis he characterised capitalism as being the leading sector in Indian agriculture, although he considered it not yet to be dominant.

The whole question of the extent of capitalism in Indian agriculture was later taken up by Daniel Thorner [*1967*] who, after a visit through villages in Northwest, North, West and South India in 1966 concluded that whereas 15 years earlier he had been impressed by rural stagnation "this time he found alert, enterprising cultivators, eager to experiment with new scientific methods, quick to switch to power for traction and pumping, ready to invest in improvements, preferring to cultivate themselves with hired labour rather than, or in addition to giving out their land on rent in small parcels; and able to obtain substantial increases in output . . . These *capitalist farmers* seem to be the most rapidly growing group in rural India; they may already be the most powerful element. The implications of this are far-reaching, not only in the economic field but for the structure of society and the future shape of politics."[*Thorner, 1967, 237*]

Thorner's contributions stimulated a whole spate of articles

concerned with identifying the mode of production in Indian agriculture - particularly the extent of the capitalist tendency. Here we shall just consider two articles on this theme in detail, because they raise important issues concerning the empirical identification of capitalist farmers which have relevance to the subsequent work of this thesis.

One of the first contributions to the debate was made by Ashok Rudra[*1969*] when on the basis of a sample survey of big farmers in Punjab in 1968-69 he identified rapid rates of capital formation, evident from a substantial rise in the value of tractors, pumping sets and tube-wells, etc. He also took up the subject of classes amongst the peasantry in the context of whether or not he found continuities in values for selected variables (e.g. ratio between land owned, and land rented out, or percentage of sales to production) when distributed according to size-groups of land owned. Rudra's criteria for identifying capitalists as distinguished from merely big farmers were as follows:

a. tend to cultivate his land himself rather than to give it out on lease.

b. tend to use hired labour in a much greater proportion than family labour.

c. tend to use farm machinery.

d. market an important share of his produce; and

e. so organise his production as to yield a high rate of return on his investments.

As surrogates for these five characteristics Rudra used correlations of the following pairs of data:

(1) percentage of land rented out to total land owned (X_1)

(2) wage payment in cash for acre of farm size (X_2)

(3) value of modern capital equipment per acre of farm size (X_3)

(4) percentage of produce marketed to total produce (X_4)

(5) cash profit per acre (X_5) [*Rudra, 1969: 213-219*]

Utsa Patnaik [*1971*] one of the most cogent and influential contributors to the debate countered Rudra's statistical criteria for identifying capitalist farmers in an article which raised a great many of the points central to the subsequent discussion. She termed Rudra's method of analysis of his data "unhistorical". His criterion of high positive association between pairs of variables, she pronounced, "would make sense only in an unreal idealised world in which different classes existed only in their purest form".[*Patnaik, 1971: A126*]. It could be satisfied "only if the process of capitalist development has been carried out to its limit so that capitalism is already the dominant mode of production. Historically, she contended, the capitalist is a former landlord or rich peasant. He does not suddenly appear out of the blue as a clearly-defined "pure" socio-economic type: he develops within the pre-existing non-capitalist economic structure.

Utsa Patnaik prefered the term "non-capitalist" to "pre-capitalist" since it did not imply that capitalism had made no headway at all. On the contrary, Patnaik believed, "ex-colonial countries like India were characterised precisely by a limited and distorted development of capitalism which does not revolutionise the mode of production".[*Patnaik, 1971: A124*] In what sense, she asked, is there today a tendency toward capitalist development which was not present earlier? The answer she suggested was to be found neither in the employment of hired labourers nor in production for the market. Each of these, she stated, was a necessary but not a sufficient condition of capitalist organization. Both were widely prevalent in India during the colonial period. The large force of rural wage labourers

arose from the pauperisation and proletarianisation of the "poorer" majority of the peasantry" under the impact of imperialism. The choice of operating with this cheap hired labour or of leasing out to tenants represented for landowners "a purely contingent, reversible decision taken on the basis of current circumstances", that is, the comparative terms on which labourers and tenants were available in the particular locality at a particular time. Similarly the colonial period saw a growing commercialisation of agriculture with increasing regional specialisation in cotton, sugarcane, etc. But this also was not capitalist production.

The characteristic of the genuine capitalist, Patnaik proposed, was not merely appropriation of surplus value generated by wage labour nor the sale on the market of a high proportion of produce, but also - and indispensably - *accumulation and reinvestment of surplus value in order to generate more surplus value on an ever-expanding scale.* "The capitalist in agriculture can be recognised by the *degree of capital intensification*: i.e. growth of outlay on both constant and variable capital with respect to a given land area and, over time, a tendency towards a higher than average organic composition of capital, leading to higher productivity of land and labour". [*Patnaik, 1971: 126*] Citing the results of her own survey carried out in 1969 covering 66 big farmers in Orissa, AP, Mysore, Maharashtra and Gujarat - Patnaik reported that a new class of capitalist farmers was emerging. [*Patnaik, 1971: 123*]

Patnaik maintained that with regard to indications of peasant classes, size of holding was not a satisfactory guide. ". . . when techniques are changing and intensive cultivation by some groups is taking place. If production techniques are intensified (more irrigation, triple cropping, mechanisation), then a farm may get

smaller in terms of area, and at the same time get bigger as an economic unit, expand in terms of output and the extent of use of hired relative to family labour."[*Patnaik, 1971: 128*] This is a theme which, as we showed earlier, she subsequently developed into a fully worked-out theory by which to identify a household's class.

I agree with Patnaik that Rudra's specification of capitalism is defective insofar it comprises simple correlations between groups of variables and has no foundations in the Marxist categories of relations and forces of production. These are the essential features of a mode of production. In our own work in this thesis we try as far as possible to anchor empirical statistical work firmly within the foundations of the key concepts of mode of production, forces and relations of production, without which the statistics alone have little meaning.

After Rudra and Patnaik's original articles the debate really got under way with Paresh Chattopadhyay [*1972(a), 1972(b)*], as Alice Thorner describes him, taking the role of "a self-appointed arbiter of Marxist orthodoxy, distributing plaudits and blames to Sulekh Chand Gupta, Ashok Rudra and Utsa Patnaik." [*Alice Thorner, 1982: 1965*] From that point on the debate blossomed with contributions from sources with theoretical positions as diverse as that of André Gunder Frank [*1973*] at one extreme, and Utsa Patnaik at the other.

In a later article Utsa Patnaik [*1976*] argued that further development of the capitalist tendency is inhibited by high levels of "precapitalist ground rent". Small peasants are prepared to pay "hunger rents" not because of high productivity, but because if they cannot rent in land they will have no means of subsistence. Under these circumstances, the type of capitalist investment which took place over the 1970's is that which "raises output and surplus per

unit of land area", such as in irrigation, double-cropping, fertilisers, high yielding seeds. Only in this way can the gains from capitalist-style production surmount the rent barrier".[*Patnaik, 1976: A99-A100*] Mechanisation and labour-replacement have been undertaken primarily when required to raise the surplus per acre, i.e. so as to allow double cropping. For this reason, capitalist investment and output expansion have shown a crop-wise and region-wise concentration. This is a point of view which has considerable relevance to the poverty debate, and which we shall demonstrate is certainly applicable to our subsequent analysis of the situation in Western and Eastern UP.

So far in this section we have looked just at the case for capitalist development in Indian agriculture, but countered against this are the claims of those who assert that significant tracts of India, particularly in the East, are characterised overwhelmingly by semi-feudal relations of production.

Amit Bhaduri [*1973*], was the first economist to specify a rigourous framework within which to examine the semi-feudal mode of production as he saw it applying to Eastern India in an attempt to analyse the influence exerted by production relations on the introduction of improved technology into agriculture. It was based on data and impressions collected by the author in 26 villages in West Bengal during 1970. He started by defining what he saw as the four main fetures of semi-feudal agriculture, namely sharecropping, perpetual indebtedness of the small tenant, the concentration of two modes of exploitation, vis usury and landownership in the hands of the same economic class, and the lack of accessibility of the small tenant to the market.

Taking each aspect separately Bhaduri defined sharecropping as a

system whereby the landowner leases out his land for at least one full production cycle. The usual practice of deducting the required seed for the next harvest before the harvest is shared out implies that the tenant lends to the landowner a part of the working capital free of interest charge. After this deduction the harvest is shared between the tenant and the landowner on some legally stipulated basis. This tenancy system is usually an enormously complicated one as it varies from case to case in terms of (i) whether the tenant also has some land of his own or works entirely on other people's land, (ii) whether the tenant supplies any working or fixed capital or the entire amount is supplied by the landowner, and (iii) how secure the tenancy right is in practice. The least secure share-croppers in West Bengal were the *kishans* with virtually no land of their own and who provide little or no capital for production and typically have a security of tenancy of not more than one production cycle. In his survey about 40-50% of the peasantry fell into this category.

He saw kishans as a quite distinct category from landless agricultural labourers. Whereas the agricultural labourer works on a daily or weekly wage basis and finds employment on land typically only in the agricultural peak seasons and has no direct interest in the land the kishan or sharecropper has an obvious economic interest in increasing production from the land.

The kishan is almost always heavily indebted. A substantial portion of the kishan's legal share of the harvest is taken away immediately after harvest as repayment of past debt with interest, thus reducing his actual share of the harvest well below his legal share. This does not leave him with enough food to survive from this harvest to the next which can only be overcome by borrowing for consumption. This perpetuates his indebtedness based upon his

regular requirements of consumption loans. This is seen by Bhaduri as as an essential element in his specification of the semi-feudal mode of production.

Perpetual indebtedness is combined with another important factor which lends the whole system its definite character of semi-feudalism - the lender of consumption loans is also typically the kishan's landlord - thus reducing him to the state of virtually a traditional serf for he is more or less tied to this particular landowner so long as the latter wants, partly because he cannot move out in search of a new landlord without settling his debt and also partly because as a "loyal" tenant he at least has some credit-worthiness in difficult times which he may not enjoy with a new landowner. The semi-feudal landlord therefore exploits the kishan both through his traditional property rights in land and through usury.

The semi-feudal economic relationship between the kishan and his landowner works with full severity when the rate of interest on consumption loans is extraordinarily high. There are two main reasons accounting for the high interest rate. Firstly, the kishan is not usually credit-worthy in any commercial banking sense because he has no asset to borrow against. The landlord is his only lender - against a future harvest and the kishan has to borrow on terms which the latter dictates - i.e. the kishan has no access to the modern capital market. Secondly the kishan does not usually have access to the "commodity market" as a seller of his product. Unlike a proper trader he cannot usually take advantage of price fluctuations in selling his product; rather he himself is a victim of such price fluctuations. In the village market the lowest price for paddy is just after the harvest, and the peak price is some time before the harvest. The kishan has to borrow at a time when current market

prices are very high, while he has to pay back just after the harvest when current market prices are at their lowest. All the *jotedar* (i.e. landowner cum lender of paddy) does is to make a forward contract of repayment in kind calculated at current market prices. An exceedingly high rate of interest on consumption loans (typically between 25 and 200 per cent) makes usury an important additional source of income to the semi-feudal landlord.

As a result he will resist any agricultural improvement which will increase production and may therefore improve the absolute amount of the kishan's share of the harvest, and thereby break the cycle of borrowing and indebtedness. In this way semi-feudal production relations operate as a barrier to the introduction of improved technology. [*Bhaduri, 1973: 135-136*]

Keith Griffin [*1974*] provided some powerful criticisms of Bhaduri's thesis. He maintained that the linchpin of Bhaduri's model was his assumption that the shares received by tenant and landowner are constant. Once that is questioned the entire model crumbles. Far from being independent of economic forces and determined "on some legally stipulated basis" Griffin considered that the share can adjust to take account of the prevailing economic and labour conditions in all sorts of ways. Once one assumes the existence of a pool of wage labour, which seems to be the prevalent condition in Indian agriculture, then there are several ways the landlord tenant relations can adjust to permit the introduction of a more productive technology. For instance, the landowner could dismiss his tenants and cultivate land with hired labour, paying a market determined wage rate in cash or kind. Alternatively the landlord could alter the terms of his tenant's contract while keeping the sharecropping system intact. One way of doing this would be by requiring the kishan to

supply a larger proportion of non-land inputs, another way would be to reduce the size of the plot given free to the kishan for his own cultivation. The landlord could reduce the tenant's share in the harvest by asking for gifts in kind or key money when the contracts came up for renewal. Indeed the landowner has the option of abandoning sharecropping entirely if he thinks that it is in his interests to do so. [*Griffin, 1974: 81-91*]

To be fair, Bhaduri envisaged four possible developments for the future, the second of which does to some extent answer Griffin's point:-

> (1) low productivity and stagnation in agriculture will continue to maintain the existing power structure of the village level in eastern India.
>
> (2) the semi-feudal production relations themselves will be modified to accommodate profitable use of improved technology.
>
> (3) and (4) It is also possible that semi-feudal production relations will gradually give way to capitalistic production relations based on wage labour or will be simply overthrown by the desperate poor unless a radical land reform is carried out by the state. [*Bhaduri, 1973: 136*]

Ghose and Saith [*1976*] pointed out that Bhaduri's model rests on the assumption of perpetual but stationary debt. They demonstrated that, given the more realistic possibility of accumulating debt, perpetual indebtedness could persist after the adoption of new technology even if the crop shares remained unchanged. [*Ghose & Saith, 1976: 315-316*]

Pradhan Prasad [*1974*] furnished support for Bhaduri's thesis with data from another area of eastern India: Bihar, where he surveyed over 2,000 households in a couple of dozen villages in 1970 and 1972. On the basis of evidence of various sample surveys conducted from 1951 through 1971 he believed that by and large the semi-feudal model was valid for most parts of rural India.

Nirmal Chandra [*1974*] who used data for West Bengal largely agreed with Bhaduri but considered he exaggerated the effect of semi-feudal relations in holding back productive forces. Even more important, acording to Nirmal Chandra, was Bhaduri's omission of the effect of "massive underemployment in our countryside. In several ways this critical un- and under-employment factor helps to explain the stability of semi-feudalism.

> (a) the value of labour power is pegged at the lowest possible levels so that the real income of a share-tenant is no greater than that of a hired agricultural worker . . .
>
> (b) From the landowner's point of view the net surplus to be extracted is the same under the one or the other system.
>
> (c) Given the weak bargaining position of labour, the landowners can arbitrarily alter the share-ratio in their own favour in case new production possibilities appear."
>
> ". . . labour surplus on a scale that is probably unparalleled in human history is perpetuating the semi-feudal set-up. Limited progress along the road to modernisation cannot be ruled out. Without vigorous measures to reduce considerably that surplus, we fail to see how one can get out of the vicious circle or how capitalism can strike deep root."[*Chandra, 1974: 1327*]

Ranjit Sau [*1975*] agreed with Nirmal Chandra's characterisation of the mode of production in Indian agriculture as semi-feudal as also with the argument concerning unemployment. He also added another factor to account for the persistence of semi-feudalism: the determination of small peasants to continue cultivation, no matter how meagre the returns because of the lack of other possibilities.

In a review of the literature on the Mode of Production, Alice Thorner [*1982*] concluded that:-

> " . . .there is no doubt that capitalism dominates Indian agriculture . . . It has been abundantly shown that the existence of widespread tenancy and/or sharecropping does not necessarily indicate the presence of feudal relations of production . . . by the same token, the use of wage labour cannot by itself be taken as a sure sign of capitalist relations .... Servile, debt-bonded and/or traditionally tied labour has been largely supplanted by free, relatively mobile, wage labour, paid (if meagrely) for the most part in cash". Yet, she continues "master-servant types of behaviour, extra-economic constraints,

> rack-renting and usury have by no means disappeared. A particular feature of the Indian scene is the vast mass of un or under-employed, who, if they cannot emigrate and find jobs outside of agriculture, exercise upward pressure on the rental price of land, and downward pressure on wage rates. The school of thought which tried to take account of these aspects by labelling Indian agriculture semi-feudal has withdrawn from the debate after about the middle of the 1970's, but there is still talk of the persistence of feudal and semi-feudal relations of production. [*Alice Thorner, 1982: 2063*]"

In this thesis we do not wish to enter into the debate, which despite Alice Thorner's belief that capitalism is now the dominant mode, has not seen the final word. Amit Bhaduri [*1983*] has subsequently refined and elaborated his theory of semi-feudal agriculture in a dynamic form so that it now takes full account of the effect on production relationships of the production enhancing technology which has been a feature of Indian Agriculture in recent years. He shows that this in no way invalidates the model. This part of his theory will be dealt with in Chapter 5.

The main theoretical generalization of Bhaduri's book is that there exists within "backward agriculture", specifically the semi-feudal agriculture of much of Eastern India, "an extensive and contrived system of forced commerce". He sees this as an integral part of the system of production relations which interact with and inhibit the development of the productive forces within agriculture.

Bhaduri's model essentially focuses upon the *exchange* relationships generated within backward agriculture rather than the system of production relationships which engender a system of unequal exchange, and which he takes as given. In capitalist production the capitalist class monopolises ownership of the means of production, and thereby accumulates profits because a system of unequal exchange renders the wage rate lower than the productivity of labour. "In precapitalist economic formations, particularly in backward

agriculture, an adequately formed labour market may not even have come into existence. Thus, a majority of small agricultural producers may not even be completely separated from their means of production. They may still enjoy some occupancy or even ownership rights to their small plots of land and may also own some of the simple implements of production".[*Bhaduri, 1983: 5*] The question then arises as to "what determines the level of surplus product in a backward agrarian economy?"[*Bhaduri, 1983: 7*]

Bhaduri takes the Physiocratic scheme of analysis as his theoretical starting point with its division of the product into that which is retained for self-consumption and that which enters economic circulation, but adds to this scheme of thought the possibility of involuntary exchange relationships, engendered when high rent and land revenue demands leave the peasant with less than required for his own and his family's subsistence. In such circumstances, the peasants have to rely increasingly upon the operation of the market system itself in order to meet their subsistence needs. This takes the form of dependence upon regular consumption loans in order to fill the gap between retained product and subsistence need, and thus to enable them to survive from harvest to harvest.

This implies, says Bhaduri, a wide-scale penetration of merchant and moneylending "capital" into the agrarian economy. The poor peasant is thus subjected simultaneously to two methods of surplus extraction - tribute in the form of rent and land revenue as well as usurious extractions. ". . . since small peasants are forced into these exchange relations through their regular dependence on consumption loans, the resulting exchange relations are basically of a forced nature. They do not arise from voluntary market participation guided by the motive of "gains from trade"; rather, they are dictated

by the compulsions of a debt mechanism."[*Bhaduri, 1983: 8*]

Surplus extraction through forced commerce · may take place directly via the market for agricultural produce itself or it can extend to all other markets via a process of differentiation of the peasantry. As a result "no single transaction or exchange relation may define the full scope of forced commerce. Rather, its essence lies in an interlocked set of transactions extending over several markets and periods of time."[Bhaduri, 1983: 9-10]

Focussing on the market for agricultural produce, Bhaduri hypothesizes a partially monetized economy in which a peasant's budget can be imagined to consist of two accounts - a cash account and an account in kind, i.e. in paddy. To meet his cash requirement, i.e. for rent and land revenue, the peasant is forced to sell such a high proportion of his output as "distress sale" at a low price immediately after the harvest that he is left with too little to survive until the next harvest. Consequently, he has to borrow cash at a high rate of interest in order to buy foodgrains from the market at a time when the price of agricultural produce is high ie."distress buying".

Quite apart from the direct exploitation of the peasant via high rent and land revenue exactions, there are thus two inter-related methods of surplus extraction at work here which rely directly on the small peasant's need to enter the market between harvests, and upon large and regular seasonal fluctuations in the prices of agricultural produce. This latter point means that interest charged on consumption loans may be implicit rather than explicit.

Bhaduri has expressed this in stylised form. The peasant is assumed to sell at an immediate post-harvest price p_t which is typically lower than the pre-harvest price q_{t-1} at which he bought paddy (i.e. $q_{t-1} > p_t$). This entails an implict own rate of interest

in terms of paddy in addition to any explicit money rate of interest that may be charged. By borrowing one rupee the peasant buys $1/q_{t-1}$) units of paddy, while to return one rupee with interest he has to sell $(1 + i)/p_t$ units of paddy. Consequently, a consumption loan of one rupee leads to an "own rate of interest" in paddy as σ_t where

$$\sigma = \frac{\text{repaid paddy per rupee - borrowed paddy per rupee}}{\text{borrowed paddy per rupee}}$$

This implies a stationary cycle of distress buying and selling, but Bhaduri also shows that different size classes of peasantry can be easily included in the analysis to produce a more dynamic model. He makes the assumption that the smaller the holding size the more likely is a peasant to engage in distress buying and selling of this type, and vice versa. This is the case because smaller peasants may paradoxically have greater market involvement than larger because of their need to purchase a higher proportion of their foodgrain consumption on the market. Their market participation is forced, and results from distress and the compulsion of debt whereas medium and large-size peasants participate in the market in a voluntary fashion, motivated by the gains from trade.

The involuntary market involvement of the small peasantry implied by such forced commercialization "entail a pattern of exchange which is hardly conducive to development and greater division or specialization of labour" says Bhaduri. "It is a process of exchange that does not link industry with agriculture to any significant extent, instead it may go on inside agriculture iself. The poor peasants, by and large, buy and sell under distress the same subsistence crop (paddy) at two different points of the production cycle, and in the process a surplus is extracted from them through the mechanism of the own rate of interest implied in such "unequal

mechanism of the own rate of interest implied in such "unequal exchanges". It is essentially a process of exchange of paddy for paddy which does not help in linking industry and agriculture through reciprocal demands. A case of 'economic involution' in which exchange relations deepen within the same sector of agriculture, without leading to greater specialization or division of labour."[*Bhaduri, 1983: 17-40*]

The tenacity of such a system of unequal exchange is freqently magnified because the function of landlord and lender is embodied in one individual, thereby enabling rental agreements to be manipulated in order to perpetuate the tenants indebtedness.

Bhaduri's theory does not seek to usurp the paramount position traditionally held by a specification of the interaction of the forces with the relations of production in Marxist economics. Rather, it extends the analysis of surplus appropriation into a rigorous examination of the pattern of unequal exchange found in backward agriculture, and thereby supplements rather than replaces the mode of production approach. As such, it is very useful from our point of view to combine insights from both traditional Marxist economics and from Bhaduri's formulation in our analysis of poverty and inequality. As we shall show in subsequent chapters, there are elements of Bhaduri's work which are of relevance to Western as well as Eastern UP, although we would not go quite so far as Bhaduri whose "characterisation of the ruling agrarian class structure corresponds to a complex co-existence of 'feudal remnants' (or semi-feudalism') sustained largely by a nexus of forced commercial relations and 'capitalist tendencies' expressing themselves in the form of expansion in agricultural production through 'progressive' farming."[*Bhaduri, 1983: 129*]

4. THE MODE OF PRODUCTION IN WESTERN AND EASTERN UP

What is the relevance of all this for poverty and inequality? We believe, as already expressed in Chapter 1, that it is important to know not just the number of people living below the "poverty line", but the mechanisms generating that poverty, and that those mechanisms differ between regions.

It is our contention that the capitalist and semi-feudal modes of production are the most useful ways of analyzing the causes of the specific problems of poverty and inequality in Indian agriculture, particularly the disparate regions of Eastern and Western UP.

As we shall show, during the course of this thesis, while the agricultural sector in the Western Region approximates more closely to a capitalist mode of production in terms of the level of development of its relations and forces of production and possesses a rural class structure which exhibits features of capitalist development, the semi-feudal mode of production is more descriptive of the conditions in Eastern UP. We are not saying that the Western Region is totally and exclusively capitalist nor that the Eastern Region exclusively semi-feudal. It is quite clear from the work of Marx, Lenin and Mao Zedong, that one mode of production is not transformed into its successor overnight. It is also apparent from work done by other authors that the Western Region of UP also exhibits relations of production which "may indicate 'compulsive involvements in the market without necessarily implying prevalence of 'capitalist' commodity production for exchange".[*Bharadwaj, 1985, 21*] What we are saying is that overall the situation in that region accords more closely to a capitalist mode than any other mode of production, and that as such this is a useful model to help us analyse the *causes* of poverty and inequality in that region and at the same time aid our understanding

of why both the pattern and the persistence of poverty differs fundamentally between Western and Eastern Uttar Pradesh.

At the same time, it has been demonstrated by other authors that in the Eastern Region, pockets of "capitalist agriculture " exist, but this is a far cry from saying that semi-feudal agricultural is no longer the most persistent mode of production in the region.

In two articles Pranab Bardhan and Ashok Rudra [*1978; 1980*] publish the results of surveys carried out in 1975/76 in regions of Eastern India which included Eastern UP. Although Bardhan and Rudra drew the conclusions from their data that semi-feudal production relationships were on the decline, the contrary interpretation - that such relationships were still very tenacious in the countryside can also be drawn - particularly for the data which applies to Eastern UP. The authors' primary focus was on the terms and conditions of land, labour and credit contracts.

The first article showed that out of 65 villages surveyed in Eastern UP, six were in highly advanced areas, 36 in moderately advanced areas and 23 in backward areas. Not less than 50% of tenants in highly advanced areas took consumption loans from their landlords, and as many as 64% in backward areas. Professional moneylenders operated in 57% of Eastern UP villages, 26% of whom also leased out land. In 42% of reporting villages in Eastern UP the landowner gave advances to tenants to meet production needs. In all the cases where the tenant worked for the landlord - amounting to 6 for landed tenants and 14 for landless tenants , labour services were unpaid. Nearly 4% of the sample villages actually reported bonded labour. In 97% of cases in Eastern UP farm servants took consumption loans from the employer. Interest-free loans for farm servants were rare. Forty-two percent of casual labourers with some land reported

having lost leased land through eviction, and the corresponding figures for casual labourers without land amounted to 51%. Indeed the eviction of tenants was reported to be increasing and affected 51% of the villages surveyed in Eastern UP. [*Bardhan & Rudra, 1978: 367-383*]

The second article concentrated on analysing share-cropping contracts. In 93% of the hundred villages surveyed in Eastern UP sharecropping was the predominant form of tenancy with the most frequent share being 50:50. In 16% of cases the tenants share was less than 50:50. [*Bardhan & Rudra, 1980: 288*] Tenancy contracts were predominantly short-term, holding good for a year or less than a year (say, a crop season), with indications that the practice of a lease for a specific crop or for a specific season was on the increase. Eight percent of tenants in Eastern UP were denied the freedom to enter into tenancy contracts with other landlords and twenty-three percent of tenants surveyed reported rendering "unpaid or underpaid" labour services to their landlords. [*Bardhan & Rudra, 1980: 299, Table 9*]

From the authors' own data, a widespread incidence of sharecropping, eviction, underpayment or non-payment of labour service, and consumption loans among their sample of villages in Eastern UP can be discerned. While the authors concede that "unequal relationships of mutual dependence with landlord-creditor-employer" often exist they give as the reasons for this "desperate conditions of poverty and underemployment" rather than semi-feudal production relationships. [*Bardhan & Rudra, 1980: 292*] It is our contention that causation runs in the opposite direction - and that it is in fact the prevalence of oppressive and often semi-feudal production relationships still widespread in the region which have perpetuated

the poverty and underemployment of a large percentage of the population in Eastern UP. It is this that we shall be demonstrating in succeeding chapters.

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CHAPTER 3

UTTAR PRADESH - ECONOMY AND HISTORY

1. THE ECONOMY OF UTTAR PRADESH
   - 1.1 FEATURES OF WESTERN AND EASTERN UP
   - 1.2 CROPPING PATTERNS AND OUTPUT IN WESTERN AND EASTERN UP

2. THE HISTORICAL DEVELOPMENT OF WESTERN AND EASTERN UP
   - 2.1 POVERTY UNDER THE MUGHALS
   - 2.2 LAND RELATIONS UNDER THE MUGHALS

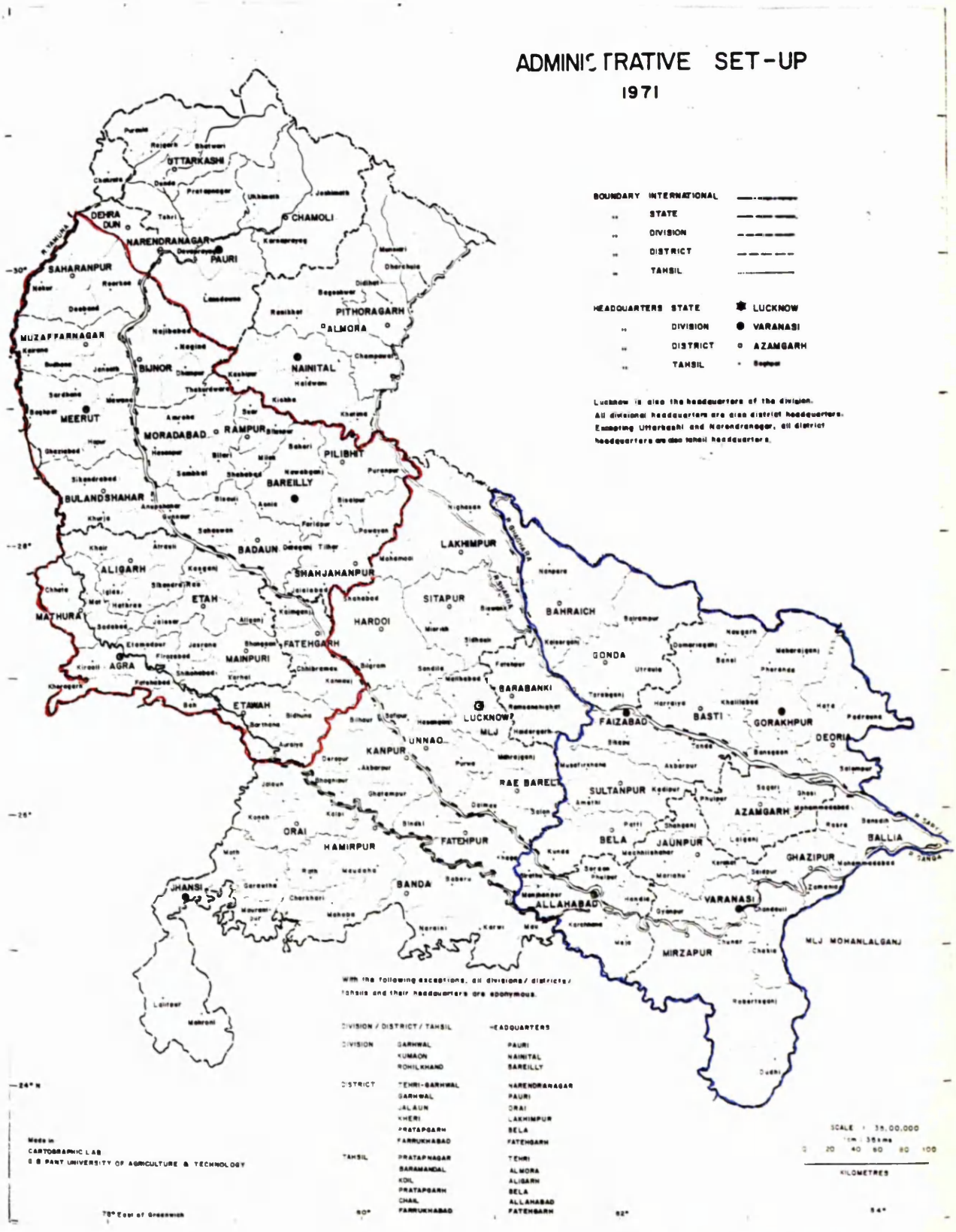
3. THE NORTH WESTERN PROVINCES UNDER BRITISH RULE
   - 3.1 LAND REVENUE POLICY UNDER THE BRITISH
   - 3.2 THE CEDED AND CONQUERED DISTRICTS - WESTERN UP
   - 3.3 THE EASTERN DISTRICTS

4. CAPITAL INVESTMENT BY THE BRITISH IN THE UNITED PROVINCES

5. POVERTY AND FAMINE IN THE BRITISH PERIOD

6. REFERENCES

MAP OF UTTAR PRADESH



Uttar Pradesh is a large and populous state in North India, bounded in the North by China and Nepal, to the West by the Indian states of Himachal Pradesh, Haryana and Rajasthan, to the South by Madhya Pradesh and the East by Bihar. It covers an area of 113,654 square miles (9.7% of the total area of India) and had a population of 88 million people in 1971 (110 million in 1981) (16.2% of the national population) making it the most populous state in India. [*Gov't. of India, 1971: 22, 1981: 34*]

Geographically, the state can be divided into four tracts: the hill and mountainous Kumaon region in the north, comprising the Kumaon and Uttarkhand Division, and part of Dehra Dun district; the narrow sub-montane tract at the foot of the Siwalik hills; the central or Gangetic plain; and the southern hill-plateau region of the Bundelkhand division and Mirzapur district. [*NCAER, 1965: 1*]

It is the central plain which is of interest within the context of this work, for it is here that the bulk of Uttar Pradesh's population lives, and where lie the major urban centres of Kanpur, Agra, Varanasi, Allahabad and the state capital of Lucknow. Stretching from Haryana in the West to Bihar in the East, and fed by the rivers of the Ganges-Jumna Doab and the Gogra, this vast alluvial plain - covering 42 of the 54 districts of the state and 21.5 million hectares of UP's total area of 25 million hectares - is relatively fertile and densely populated. The plains are more or less completely flat - with a gentle slope towards the South East. The soils are generally characterised by different combinations of sandy and heavy loams and are generally good agriculturally but marred by areas of salinity. [*NCAER, 1965: 2-3*]

1. THE ECONOMY OF UP

The economy of UP has not kept pace with the economy of India. In 1951 the per capita income of UP was 5% higher than the national average. In 1961 it was 7% lower. [*Etienne, 1868: 47*] The share of UP in the total national income, which was about 17.5% before the planning era, came down to 15.5% at the end of the second five year plan, 13.5% in 1960-61 and 12.9% in 1970-71. During the period between 1960-61 and 1970-71 average national per capita income increased by Rs. 41 in constant prices, whereas in UP it increased by only Rs. 30.5. [*Board of Revenue, 1973: 111*]

Compared with India as a whole UP was one of the industrially least developed states at this date. Its industrial structure was largely dominated by village and cottage industries, with the only important industries in the organized sector being the sugar and textile mills, and these concentrated in specific areas. Kanpur, in the central region was the only town in UP where a sizeable industrial complex had been built up. The NCAER, in their techno-economic survey of UP ascribed the industrial backwardness of the State to the lack of industrial raw materials (particularly the basic minerals), shortage of power, inadequate transport and communication facilities, lack of local demand and paucity of skill, capital and local entrepreneurs. A measure of the State's industrial backwardness was that in 1960-61 the net value of output from industries was only 7.9% of UP's total net output (compared to 14.6% for India as a whole).The industrial structure of UP, dominated by non-factory enterprises, is heavily weighted in favour of agro-based and textile industries. These two groups accounted for more than half of the total factory employment in 1960. Productivity per worker was very low (in 1958 Rs. 2,174 compared to Rs. 3,962 per worker for all India). The main

explanation for this is that most units were small and the machinery old, with the result that economies of large-scale production could not be obtained.

Economically, the state in 1971 was predominantly agricultural with 86% of the population living in villages and with 77% of the working population employed in the agricultural sector as cultivators (peasants and farmers) or agricultural labourers in 1971. [*Gov't. of India, 1971: 2-3*] (The percentages for 1981 were practically identical.) The progress of this sector is therefore of vital importance both to the overall economic performance of the economy and to the per capita income of the people involved in it.

1.1 FEATURES OF WESTERN AND EASTERN UP

The gangetic plain can be divided into three regions which have different climatic, geographical and socio-economic characteristics, although there are no clear natural boundaries. The Western Region comprises all the districts of Meerut, Agra and Rohilkhand divisions excluding Dehra Dun District, and Etawah and Farrukhabad districts of Allahabad division (outlined in red on the map on page 97). This region has mainly deep and fertile soil with some patches of saline and alkaline soils. It receives comparatively less rainfall than other regions of the plain. It has a well-developed canal network, and irrigation by tube-wells and wells is also extensive. It is the major wheat-producing area of the state and agriculturally the most developed region with the average yields of most crops comparatively higher than in other regions.

The Eastern Region covers mostly the eastern part of the Gangetic plain and some part of the southern plateau. It consists of all the districts of Gorakhpur, Varanasi and Faizabad divisions (except Bara Banki) and the district of Allahabad in Allahabad division (outlined

in blue on the map on page 97) This region has mainly alluvial soil except in Mirzapur district, the major part of which has red soil. The Eastern region, particularly its northern part covering Gorakhpur Division receives the highest rainfall in the state. Due to a large number of small rivers some parts of this region are flooded almost every year. Some of the areas of the region also sometimes suffer from severe drought. Economically it is a relatively backward area of the state. Rice is the major crop, and agricultural productivity is in general low.

Central UP, which is excluded from this study, is a transitional region which includes the state capital of Lucknow and the important industrial city of Kanpur.

As already mentioned, the industry that did exist in UP was not evenly spread throughout the state. Although compared to the central region, Western UP had a low level of industrialization, it had a larger industrial sector than had the Eastern Region. In 1960 a total of 84,842 people were employed in large scale industries in Western UP, compared to just 49,187 in the Eastern Region. Indeed, so industrially underdeveloped was Eastern UP at this date that most of its districts had industrial employment only on account of the sugar mills. Of Eastern UP's fifteen districts seven had fewer than one thousand people employed in large-scale industry, of which three districts, Bahraich, Pratapgargh and Sultanpur had no large-scale industry at all in 1961. [*NCAER, 1965: 105*]

The disparity between the regions was even more marked for small-scale industry, with a total of 21,043 people employed in this sector in the Western Region in 1960 compared to just 5,442 people in the Eastern Region. In the Western Region the districts of Agra, Meerut, Aligargh, Muzaffarnagur and Moradabad in that order, had the

largest numbers of people employed in small-scale industry, whereas in the Eastern Region such employment was largely concentrated in the two districts of Allahabad and Varanasi - both important urban centres. Broadly speaking, therefore, Eastern UP (except the cities of Allahabad, Varanasi and the hilly district of Mirzapur in the north) had remained largely untouched by industrial development. [*NCAER, 1965: 136*]

In 1971 the total population of the Western Region was 31·314 million, more than 81% of whom lived in rural areas; 8·997 million people were classified as working, representing 29% of the total population. In the Eastern Region the total population was slightly higher at 33·171 million, of whom an enormous 92% were classified as rural (The working population represented 31% of the total population, again slightly higher than in the Western Region.) [Statistical Abstract, 1976-77: Table 9] Density of population was very high in both regions, having reached 381 people per square kilometre in the Western Region in 1970-71 and 387 in the Eastern Region. In the Eastern Region population had pretty much reached saturation point by 1971, given the low level of industrial development, and the backward nature of its agriculture. The growth rate of population in the decade 1961-71 at 1.6% per annum was lower than in the Western Region where it grew at a rate of 2.0%. [*Board of Revenue, 1974: Table 2.3*] Out-migration from the Eastern Region, and in-migration to the Western Region was one reason for this.

This high population pressure in the Eastern Region has resulted in sub-marginal lands being brought into cultivation, despite which the amount of cultivated land per head of rural population was the lowest in the state with a figure of 0.18 hectares of net sown area per head of rural population in 1970-71 compared to 0.22 hectares in

the Western Region. [*Board of revenue, 1974: calculated from Tables 2.3, p. 9, Table IV, p. 133, p. 145*]

This relative shortage of land in the East was also reflected in the division of the working population between cultivators and agricultural labourers. Twenty-two percent of the rural workforce in Western UP was defined as agricultural labourers, whereas 33% of the rural workforce of Eastern UP was so defined - this phenomenon will be examined in detail in subsequent chapters. [*Gov't. of India, 1971: 2-3*]

The Western Region was much better endowed with infrastructure than the East, particularly, roads, power generation, transmission capacity, and irrigation. The latter has its roots in British investment in the Region and will be considered in detail in the next section.

1.2 CROPPING PATTERNS AND OUTPUT IN WESTERN AND EASTERN UP

Inevitably, the agro-climatic, and infrastructural differences between the two regions were reflected in cropping patterns. Taking the Western Region first, 78.5% of the total cropped area in 1970-71 was devoted to food-crops, by far the most important of which was wheat, a rabi crop with 33.3% of total cropped area. Next came paddy, a kharif cereal covering a total of 10.7% of total cropped area, and maize with 9.3% of area. Barley, a rabi crop, is generally regarded as an inferior cereal which is not greatly prized in consumption except in the absence of alternatives, and covered only 2.4% of total cropped area. The two kharif millets bajra and juar covered between them 12.3% of total cropped area, but of the two bajra was by far the most important, contributing 9.7% of total cropped area. The final crop of any significance is gram, a rabi pulse covered 5% of total cropped area. Between them, these food crops

cover 73% of total cropped area, the remaining 4.5% of area being covered by various minor pulses and vegetables. Turning to non-food crops, by far the most important is sugarcane, taking up 9% of total cropped area. Groundnut was the only other non-food crop of any importance, covering 2% of area; castor, til rapeseed, linseed, cotton and jute, and miscellaneous accounted for the remaining area. [*Board of Revenue, 1974: Table VI, 134-135-136*]

The pressure of rural population in the Eastern Region is reflected in the fact that in 1970-71 93% of the total cropped area was covered by food crops. Given the higher rainfall, and less developed irrigation infrastructure, it is not surprising that at this date the kharif crop paddy predominated, with more than 34% of total cropped area. This was followed by wheat with 23.7%, barley with 7% and maize with 6.6% of total cropped area. The millets bajra and juar were much less important in the Eastern Region, covering respectively 2.3% and 1.6% of total cropped area, but pulses were more important; the rabi pulse gram covered 5% of area, identical to the West, and the kharif pulse arhar, of negligible importance in the West, 3.2%. Sugarcane was by far the most important non-food crop covering 3.6% of total cropped area, although this is a much smaller percentage than in the West. [*Board of Revenue, 1974: Table VI, 146-147-148*]

On the whole, average yields of these crops tended to be lower in districts of the Eastern Region than in the West. Wheat, for instance averaged a figures of 13.24 quintals per hectare in the districts of the Rohilkhand Division of Western UP, and 16.82 quintals per hectare in the Meerut Division, compared to 10.43 and 11.66 quintals per hectare in the Varanasi and Gorakhpur Divisions respectively in the year 1970-71. Rice yields, too, exhibited the same pattern, although the disparity was not so marked. The average

yield was 11.03 quintals per hectare in Meerut, and 8.85 in Rohilkhand Division of Western UP in 1970-71 compared to 7.25 quintals and 8.29 respectively in Gorakhpur. [Board of Revenue, 1970-71: Table 3.5, pp 78-79]

If we look at the growth in the production of foodgrains in the two regions over the period 1950-51 to 1970-71, then an interesting pattern emerges. Over the period 1950-51 to 1964-65, prior to the Green Revolution foodgrain output increased at an average rate of 1.15% per annum in the districts of Western UP, compared to a rate of 2.05% in the Eastern Region. However, if the period is extended up to 1970-71, to take account of the first phase of the Green Revolution the annual average rate of growth of foodgrains in Western UP jumpeddramatically to 3.4% compared to a fairly stable output growth in the Eastern Region of 1.9% per annum. An increase in the gross cropped area, particularly as a result of double cropping contributed something to output increases in both regions during the entire period (cropping intensity in Western UP averaged 129 in 1970-71 and 125 for the Eastern Region), but there is little doubt that it was the enhanced yield achieved as a result of the widespread introduction of the Green Revolution package of practices in the Western Region, possible because irrigation was already relatively well-developed there, that was the main reason for the much larger overall growth of foodgrain output in that region. [*Tyagi, 1974: 44*]

2. THE HISTORICAL DEVELOPMENT OF WESTERN AND EASTERN UP

The Mughal Period

Akbar (1556-1605)

Jahangir (1605-1627)

Shahajan (1627-1659)

Aurangzeb (1659-1707)

The situation we find today in UP with a relatively prosperous Western Region contrasted with a poor and little developed Eastern Region is the outcome of the interaction between several factors, of which historical events are not the least important. However, as we shall show below, the pattern of prosperity and poverty between the regions has not been immutable through past ages and has undergone quite dramatic swings.

Unfortunately our knowledge of the economy of UP prior to the British period is very scanty. However, from evidence that does exist, it is clear that as far back as the reign of Akbar (1556-1605) the area we now refer to as Uttar Pradesh was by no means uniformly developed throughout its districts. [*Habib, 1965: 13-14*] The fact that the Mughal Emperor's Court was situated first at Agra and later at Delhi, meant that both these cities became highly populated commercial centres with a large demand for food and commodities. Indeed, Agra was the largest city of the Empire in the 17th century with an estimated population which ranged between 500,000 and 660,000. This must have had an impact upon the surrounding countryside. The few data that exist from this period suggest a high ratio of urban to total population in Mughal India. In Akbar's Empire we are told, there were 120 big cities and 3,200 townships, each having under it from 100 to 1,000 villages. [*Habib, 1965: 76*] on which they depended for their subsistence. This was possible because a large proportion

of the produce of the villages was siphoned off by means of high land revenue assessments. [*Habib, 1965: 89*] Not only were the urban areas of the Western Region economically dependent on the surrounding countryside, but they also imported a large volume of goods from the Eastern Region. Transport on land of goods of bulk, like foodgrains, sugar butter and salt was organized by the caste of Banjaras who had a practical monopoly of this trade. Enormous caravans of up to twelve or fifteen thousand laden bullocks would traverse across Northern India. Rivers too were an important, and indeed the cheapest means of transport. From Agra in the West barges of 300 to 500 tons sailed to Patna and Bengal. [*Habib, 1965: 62*] Furthermore, there was brisk trade along the Ganges and Jumna up to Agra. Agra not only imported raw sik and sugar from Bengal and Patna, but also obtained such provisions as rice, wheat and butter from the Eastern Provinces "without which, it is said, it could not have fed itself."[*Habib, 1965: 72*]

Oudh, together with the Northern parts of the Mughal province of Allahabad, which included a substantial part of what was later to become Eastern UP, "was the gateway to the eastern provinces. As the routes through and along the Yamuna became vulnerable by the late-seventeenth and the early eighteenth centuries, in the wake of the Maratha and the Bundela risings, the roads from Delhi through Central and Eastern UP to Bihar and Bengal, became particularly important for trade. [Alam, 1986: 12] Intra-region as well as inter-region trade in local goods, artifacts and foodgrains sustained a network of towns and money markets of varying sizes throughout the empire, linking some of the regions together with strong ties of economic interdependence. [*Alam, 1986: 14*] Oudh in particular registered "unmistakable economic growth in the seventeenth century". This resulted in a rise

in the revenue figures and the emergence and affluence of a number of towns with a chain of routes to link them to the long-distance trade.

Economically, the Mughal period was far from stagnant and it is clear that the area experienced economic growth in the seventeenth century, particularly in the Eastern Region. [*Alam, 1986: 6*] Allahabad province contained several important industrial towns. Jaunpur was famous for many local industries such as woollen carpets, cotton and silken goods, which formed the core of an export trade via the Bengal ports. [*Islamia, 1974: 154*] Benares had a number of famous industries, the best known being silk, cotton and embroidered products. According to Manrique, referring to the 17th century, cotton cloth was woven by 7,000 looms in Benares and its neighbourhood, to which is mainly ascribed the city's prosperity. [*Islamia, 1974: 156*] Textiles were the principle manufacture and export of the province. Twining, in an 18th century account says "many large boats were lying here laden with bales of cotton, of which article Mirzapur is the chief emporium on the great river. [*Islamia, 1974: 156*]. However, not only textiles were exported. eighteenth century records refer to the export in large quantities of sugar and jaggery from Mirzapur and Benares. Other goods exported through Benares from all over the province included saltpetre, shellac, lime, cotton iron and indigo. At the same time 'it functioned as an entreport for Ghazipur goods, sent to Patna and further east through that place'. [*Islamia, 1974: 154*] Tin, zinc and iron were sent from Mirzapur to Gorakhpur. Sheep were exported from Jaunpur in large numbers. [Islamia, 1974: 158].

During the 17th and 18th centuries much trade was carried by rivers. Allahabad, being situated at the confluence of the Ganges and the Jumna, became an important centre of the shipping industry.

Here big boats were built. Boats loaded with goods plied between Allahabad and Benares and further east towards Bengal. Traffic on various tributaries of the river Ganges was fairly high. [*Islamia, 1974: 159*] Quite clearly the Eastern provinces which now form the Region of Eastern UP thrived in the seventeenth and eighteenth centuries, and indeed, it seemed, were also crucial in helping to support the large urban population of the Western Province of Agra.

The prosperity of the region was an obvious advantage to the zamindars who enjoyed a dominance in rural production; intermediaries' collections from the peasants rose more substantially in proportion to their payment to the state. [*Alam, 1986: 304*] It also benefited the merchants who controlled and regulated the markets. The economic and monetary institutions of the seventeenth century which had led to the expanded network of commerce and the distant credit markets survived the collapse of the Mughal Empire, "and amid the political turmoils of the eighteenth century, kept a large part of the erstwhile empire inter-connected."[*Alam, 1986: 311*] Indeed, the entire region of Oudh and the adjoining districts experienced "remarkable growth in the early eighteenth century. In the Benares region Benares city was particularly noted for its wealth and money." Even after the demise of the empire, the revenue raised in the region continued to rise, particularly under Balwant Singh and Chait Singh, the Rajas of Benares in the mid 18th century just prior to the British takeover. [*Alam, 1986: 315*] The Eastern region of what was to become Uttar Pradesh thus contained some very prosperous areas during this period.

Records relating to the province of Allahabad during the 17th and 18th centuries indicate that the land was arable and rich in the production of both food and commercial crops. A comparative study of

principal crops mentioned in records from Akbar's reign with those of the District Gazetteers shows a continuity of crop cultivation up to the early years of the twentieth century with wheat, barley, peas, linseed and poppy among the rabi crops and cotton, rice, kodon, sugarcane among the kharif crops. [*Islamia, 1974: 138*]

By contrast, the Western Region of Agra was relatively overpopulated, and the land not so productive. A large proportion of the peasants' produce in this region was marketed. In some cases it was parted with in lieu of land revenue, but in most instances the peasant was obliged to pay the revenue in cash so that in effect this was forced marketing. This occurred against a background of poor irrigation, and consequent low yields - probably only half that which could be achieved in the better watered agriculture of the Eastern region. A large proportion of the produce of the villages was therefore being siphoned off to urban areas without a corresponding flow of commodities in the opposite direction. This was the case because the proportion of their produce left with the peasantry after the forced exaction of land revenue was so low that the villages were unable to provide a market. [*Habib, 1965: 76-80*]

A regional survey covering the area that is now UP was carried out in the 47th year of Aurangzeb's reign, that is in 1707. This seems to indicate that during the latter part of the Mughal period the Western Region around Agra was much more densely populated than the Eastern Region. The Agra province comprised the Central Doab and a big block of territory on the right side of the Yamuna, both north and south of the Chambal River (See map on page 97.). Aurangzeb's measurements indicate that the cultivable area covered about 85% of the cultivable area reported from the corresponding territory in 1909-10, and that the number of villages assigned to the province in

Aurangzeb's records was about one-third larger than the figure derived from the 1881 and later censuses. [*Habib, 1965: 13*] .

The situation was very similar in the province of Delhi, which comprised the regions of Western UP now known as Rohilkhand and the Upper Doab, and the Haryana Tract. By the beginning of Aurangzeb's reign (1659) all the land and villages had been surveyed. Cultivable area came to about 80% of the cultivable area returned in the 1909-10 census and the number of villages was nearly 50% greater than recorded in the 1881 census. [*Habib, 1965: 12*] The larger number of villages and the fact that the extent of cultivation was less in Mughal times implies that on average the villages must have been much smaller than they are nowadays. Clearly, up until the mid-17th century the combination of high population density, low yields, and a forced marketing of produce which amounted to expropriation of the peasantry by the urban elite, must have resulted in low levels of consumption for the cultivators themselves.

In the Upper Gangetic Plains of what is now Western UP, wells must have provided the chief source of irrigation. Construction of canals in this region was not started until the early nineteenth century when the Eastern Yamuna Canal was dug. Earlier, however, during the reign of Akbar in the latter half of the 16th century, the Canal of Firuz Shah running beside the Yamuna was repaired. Later in the reign of Shahjahan (1627-1659) a new channel 78 miles long was dug to serve the new city of Shahjahanabad at Delhi. Franklin in an account of 1793-4 speaks of it fertilising in its course a tract of more than 90 miles in length. Despite inadequate irrigation, agriculture in the Western Region was of necessity - given the heavy call on it - very intensive. [*Habib, 1965: 27*] Contemporary observers noted that in the Delhi and Agra regions as many as three crops were harvested each year.

This must inevitably have led to the eventual exhaustion of the land and a progressive decline in yields. This combined with the heavy exactions of the Mughal State meant that there was insufficient surplus remaining to support a rural rentier class. As a result, the proprietors of the land - the peasantry cultivated the land itself, a factor which was to have crucial importance in the development of land revenue policy under the British and for subsequent land relations in the region.

Mughal India exhibited the same broad divisions into rice and wheat and millet zones that we find today. Wheat was grown in its natural region - the Western Doab - now Western UP. However, according to Pelsaert it did not enter into the diet of "the common people" which consisted mainly of rice, millet and pulses, supplemented by a few vegetables or pot herbs. Habib, [*1965: 91*], quoting Pelsaert [*1926*] The cash crops of modern classification are practically identical with the "high grade" crops chiefly grown for the market in Mughal times. Alongside wheat, was grown sugarcane and cotton. Cotton was particularly important in the Agra region, and was more prevalent in the cropping pattern than it is today. [*Habib, 1965: 23*]

This picture of a relatively populous, intensively cultivated, and commercial agricultural environment in the West, particularly in the later Mughal period, is contrasted by the picture of the Eastern provinces presented by Aurangzeb's statistics. The survey of Allahabad province shows that at the end of his reign (1707) only one-half of the cultivable area reported in 1909-10 was being cultivated at that time. [*Habib, 1965: 23*] Gorakhpur was described by the Governor of Oudh as "absolutely desolate". Much of it must have been covered by *tarai* forest. From a statement by Tavernier it appears

that all was forest north of the town of Gorkhpur. Across the River Gogra to the South was a dense forest which extended into the Eastern parts of Azamgargh district where there are now no traces of jungle. In Gorakhpur, right up to the beginning of the 19th century a system of shifting cultivation was practiced whereby old clearings were abandoned once the land was exhausted and fresh clearings made elsewhere. Habib [*1965: 23*], quoting Tavernier [*1925*] Clearly, compared to the Western Districts, the Eastern Districts of what is now UP must have been much less densely populated than they are today. This, combined with the higher yields - possible because of more rainfall - meant that a substantial agricultural surplus was produced in the region. Further away from the seat of Imperial Power, the agriculture of the region was not called upon to support an unproductive urban elite to the same extent as had been the case in the West, although wheat and sugar were exported to the West. Furthermore, central power was altogether weaker in the Eastern Districts so that a class of powerful rural intermediaries between the state and the peasantry, mainly drawn from Rajput elites who migrated to the region at the time of the Mughal invasions, dominated in the region. It was this class, rather than the state, as was the casein the West, that was the main expropriator of the agricultural surplus produced by the peasantry in the Eastern Districts. As will become apparent as the work progresses, the pattern of land relations engended by such feudal domination has had consequences in the Eastern Region, which are being felt right up to the present day.

2.1 POVERTY UNDER THE MUGHALS

Poverty and want has a long history. We have no indication of whether the material conditions of the people differed between regions of the Mughal Empire, although based upon what has already been shown

about the varying prosperity of the two regions we would expect there to be considerable inter-regional variations in prosperity and poverty. In general, the reports of contemporary European commentators paint a very bleak canvass of the life of the peasantry, but their perceptions may well have been determined to some extent by the difference between their own culture and that of the Mughal Empire. "The common people" declares a Dutch observer during the reign of Jahangir (1605-1627), live in poverty so great and miserable that the life of the people can be depicted or accurately described as the home of stark want and the dwelling place of bitter woe."[*Habib, 1965: 29*] Similarly, retrospective, and often very unfavourable accounts by British writers in the 19th century on the situation of the common people in the Mughal period were coloured by the desire of the new colonial power to represent their own rule as being more beneficial to the people than that of their predecessor. Moreland for instance comparing the Mughal period with that of the British boasts that under British rule 'the very idea of a food famine has been banished from all but the few tracts still inaccessible". [*Moreland, 1923: 201*]

The truth of the matter is that we know very little with any certainty about the situation of the peasantry in Mughal North India, and even less with regard to the regional disparities between the areas which were to become Western and Eastern UP. It is known that droughts and famines occurred throughout the period and that taken overall no region was spared such a visitation at some time. Epidemics of disease were frequent visitors, too, including bubonic plague on several occasions. The accounts that do exist seem to suggest that the Western Region was more frequently and more severely affected than the East. (However one must bear in mind the fact that

as the Mughal Court was situated first in Agra and later in Delhi written records may well understate the true prevalence of famine in the Eastern districts).

In 1554-5 and 1555-6 areas in the Agra and Rohilkhand Divisions of what is now Western UP were ravaged by "the tail end of a terrible famine.". People died in groups of 10's and 20's and more, and the dead got 'neither graves nor coffins'. The common people lived on the seeds of Egyptian thorn, wild, dry grass and cowhides". Eye witness accounts of acts of cannibalism are documented. Most of the affected country "was rendered desolate, cultivators and peasants disappeared and rebels plundered the towns of the Muslims."[*Habib, 1965: 101*]

The years 1613-14 and 1614-15 were, according to contemporary writers, a period of "excessive drought in the Western Region, which was followed by bubonic plague. Again in 1646 and 1650 there were droughts that particularly affected the area around Agra. A prolonged period of scarcity in the region began in 1658; caused initially "by the ravages of the war of succession it was sustained for the first 4 or 5 years of Akbar's reign by the faults and failures of the monsoon. [*Habib, 1965: 105*]

The Allahabad Province of the Eastern Rgion suffered serious famines for the years 1595-98, which were apparently followed by plague. [*Islamia, 1974: 168*] In 1670 the kharif crop failed completely in Eastern India including large parts of what is now Eastern UP, followed by an acute famine which caused substantial mortality. The evidence on the famines of the Mughal period is scanty and patchy, and "shows considerable variations in the frequency of the visits of famines to various regions". But, as Habib comments "in part this may be due to the fact that we are better informed about

some provinces than others."[*Habib, 1965: 109*]

When they occurred, famines led to the deaths of significant numbers of people. However, they were the exception rather than the norm. From what evidence does exist it seems that the condition of the poorest among a peasantry that must surely have been differentiated, was little different than it is today. Habib quotes Mundy [*Habib, 1965: 97*)] as describing the huts of the peasants of the Doab as "badd mud walled ill thatched covered houses", and comments that "it is obvious that there has been practically no change in the housing conditions of the peasant, for better or worse, during the last three hundred years." It seems that poverty and squalor were the lot the poor peasants in normal years. [*Habib, 1965: 100*] Certainly, as we shall indicate later the peasantry was subject to high revenue demands, which, we would speculate, forced them to differentiate their economic actitivites in order to survive. "A combination of purely agricultural work with manufacturing processes was a notable feature of peasant life in our period."[*Habib, 1965: 57*] Further evidence for a squeeze on the peasantry comes from the statement that ". . . we find cultivation responding closely, almost desperately to market demand" during the Mughal period. [*Habib, 1965: 81*] This could well have been a response to a need for cash in order to pay the land revenue. Speculatively, there were many at the bottom of the pile who, even in normal years struggled to survive on the balance left to them after demands of revenue and creditors had been met. This begs the whole question, raised briefly in the previous chapter of the extent to which this can be described as a feudal society. And more relevantly, for us, whether aspects of that feudal society have shown such a tenacity that in some regions, particularly Eastern UP, they survive to the present day.

Fundamental to such considerations is the relationship of the different classes to the land.

2.2 LAND RELATIONS UNDER THE MUGHALS

A system of land revenue assessment and collection had grown up in varied and localised forms under the Delhi Sultanate (1206-1526) and the earlier Hindu Rulers. The revenue was gathered by officials on the basis of an estimated value of crop yields. The Mughals changed this system in three ways.

1. They converted into a cash payment what had previously been a payment in kind, although the latter continued in many areas until long after.

2. They improved the administration of land revenue collection by centralising what had formerly been a locally organised share-out.

3. They introduced techniques of settlement by appointing officials who would estimate the average annual yield of the cultivators land, then define in monetary terms the "settled" annual "tax" or state rent. [*Moreland, 1929: 136*]

When central power was strong, as at the height of the Mughal period, revenue would be collected directly from the peasants by the tax collectors of the Emperor. When central power was weak, the revenue would be collected by a local ruler of old or recent origin, stepping into the vacuum left by the decline of central power. Alternatively, a common arrangement was - where central power could not muster sufficient force or influence to control a particular area, the right to collect the revenue would be passed to a local leader (e.g. Hindu raja) who would pay a certain annual sum to the central power and live off the difference between that and the amount collected from the peasants. Such arrangements therefore reflected the growth of an intermediary between the state and the peasant. Such intermediaries were embryonic landlords, although property ownership as such did not exist. [*Clift, 1983: 22*]

The greater distance from the seat of government of the Eastern Region, and its considerable prosperity in the Mughal period meant that the intermediaries in the East were able to acquire and hold on to power over the land and the peasantry, collecting the revenue and in many instances retaining a considerable share for themselves. By contrast, there was greater central control of revenue collection in the Western Region, and less leeway for local intermediaries to siphon off large proportions of the revenue for themselves. At the same time the greater density of population, and the lower productivity of agriculture left less for the intermediaries anyway. As a result, there never grew up in the region a powerful, virtually feudal class of *taluqdars* and *zamindars*. Indeed zamindari rights were frequently vested in the cultivating communities themselves with the duty to collect the revenue very often vested in the local *lambardar*, ie. the village headman.

The peasant cultivators themselves enjoyed permanent and hereditary rights of occupancy, subject to certain conditions.

1. The peasant could not legally abandon his land, so he cannot be described as its owner.

2. He was subject to revenue assessment by the Mughal authorities, and

3. He was often subordinate to a *zamindar* and his kinsmen.

The status of zamindar gave the holder the right to claim a share of the annual yield of the lands in his zamindari, and his share was exacted in a variety of ways. In some cases the zamindar could make a direct levy on the peasants, in cash or in kind, in excess of the land revenue collected by the authorities. In other cases, he could claim a share of the land revenue either from the government or by acting as the revenue collector and keeping a fixed percentage of the revenue for himself. A zamindar who combined the function of revenue

collection for the State alongside the right to claim a share of the annual yield of the lands himself was known as a *taluqdar*. This was most prevalent in Oudh and the far Eastern districts of Eastern UP. A zamindar could also be granted a proportion of his own landholding revenue-free. Like the peasant his status was permanent and hereditary.

Zamindaris comprised villages or parts of villages and were granted to members of patrilineal clans who often claimed descent from a lineage group which had conquered the area. Whether or not their ancestors had actually been conquerors, their claim to zamindari status was often backed by armed force. [*Clift, 1983: 22*] Thus members of martial castes, such as the Rajputs, became locally dominant and divided the land under their control among their constituent clans. Together the clans claiming common descent formed "little kingdoms" covering a number of villages, often with a raja at their head, who would be, to some extent an autonomous petty chieftan maintaining a fort and exercising his rule over the local population. In return for their loyalty to the Empire, such "little kings" or rajas, or in some cases the whole dominant clan, the latter arrangement being more prevalent in the West, would be granted zamindari status. [*Cohn, 1955: 55*] The zamindars were frequently the virtual rulers of the region in the East; "and the terms on which their relations with the state were worked out depended on the strength or weakness of the people and the areas they controlled". Their position, strength and resources were, in origin, independent of the state. But they were sharply divided among themselves on caste, clan and territorial lines and were perpetually at war with each other. "Each group feared the other; each had to be constantly on guard against the actual or threatened encroachment of the

other."[*Alam, 1986: 6*]

The structure of zamindari differed markedly between the regions of UP. The lack of an intermediary class in the Western Region meant that the zamindari rights were often settled with the actual cultivators of the soil. By contrast, in the Eastern Districts the Zamindari rights were much more likely to be in the hands of the locally dominant intermediaries who had gained in power during the Mughal period. This difference was to have powerful implications for the development of British Land Revenue Policy in the two regions, the consequences of which is still felt till this day.

In the Allahabad province of the Eastern Region the zamindars as a class gained considerable influence on account of their hold over the local population The attitudes of defiant zamindars created serious problems for the emperor, especially in the second half of the 17th century. Referring to them, Irfan Habib wrote ". . . the zamindari right had everywhere certain features in common; its possession was hereditary, it owed its origin not to the bounty of the emperor, but to independent acquisition, to clan settlement, usurpation, or purchase. It is also noteworthy that the possession of armed force was almost an inevitable complement of a Zamindari right of any consequence." The zamindari during the latter part of the Mughal period was regarded "as an article of private property" by the zamindar with his normal duty to pay the required land revenue." [Islamia, 1974: 106-107]. Defiant zamindars, who usually kept armed retainers sometimes occupied neighbouring areas suitable for them to consolidate their power. For this they simply used force on the weaker party and did not bother about imperial sanction. During the latter half of the 17th century the zamindars gradually became more defiant of the Mughal authority with the struggle between imperial

administration and the zamindars breaking out frequently into armed conflict in the Eastern Region. [*Islamia, 1974: 111-112*]

With the decline of the Mughal Empire which progressed throughout the 17th century the Zamindars of the Eastern Region continued to strengthen their position. Their domination of the local people rendered them practically masters of their regions and it seems accurate to describe the situation as having many aspects in common with feudalism. The Mughal land system, and the conflicts it engendered had consequences for agricultural development in that the zamindari rights to collect the revenue over specific areas were liable to be transferred frequently, in an attempt to curb the power of the nobles. This had the detrimental effect that a far-sighted policy of agricultural development could not be pursued. In some areas the peasants were even deprived of their means of survival as a result of such transfers. In addition there were some very high revenue demands, such that Alam contends that by the late 1700s the burden on the peasants in many areas of North India had become unbearable and that in many areas they actually took flight or refused to pay. [*Alam, 1984: 4*] Similarly Habib argues that the system of land revenue left little with the peasantry to invest in improvements of agriculture or to provide a market for the tools, techniques and goods of others. [*Habib, 1965: 317-51*]

The Mughal Empire rested on a very complex administrative structure. Not only the nobles, but also the zamindars, and subsidiary intermediaries in the villages "drawn from various regional and local communities were all integrated intimately into the framework of the empire."[*Alam, 1984: 5*] The Mughal empire rested on a balancing of these diverse interests - interests which were intimately tied up with the plethora of rights to collect the land

revenue. Frequently conflict would arise over such rights between competing local nobles or kinship groups, but because of their inability to mobilize beyond relatively narrow bounds the institution of empire itself remained secure. "The empire signified a co-ordinating agency between conflicting communities and the various indigenous socio-political systems at different levels."[*Alam, 1984: 5*]

This, then, in a simplified form (for there were many variations within this basic theme) was the system of land relations, and land revenue collection inherited by the British. But of particular significance was to be the greater power of the intermediaries in the Eastern Region.

3. THE NORTH WESTERN PROVINCES UNDER BRITISH RULE

The area presently known as Uttar Pradesh fell to Great Britain piece by piece over 86 years, but accretions fall into three groups when classified according to British land policy.

1775 - Benares came under the East India Company

1795 - Benares permanently settled in accordance with policy in Bengal at the time, i.e. with the zamindars.

1801 - Ceded districts were given to the Company by the King of Oudh

1803 - Conquered districts fell to the Company

1817 - Bundelkhand fell in military action.

Together these districts were collectively administered after 1835 as the North Western Provinces.

1856 - Oudh acceded to the Company, and was separately administered until 1877 by a Chief Commissioner. Thereafter until 1902 the Lieutenant Governor of the North Western Provinces also served as the Chief Commissioner of Oudh.

The British found a land of considerable geographic and social diversity. Ravaged by the Maratha wars of the latter part of the 18th century, what is now the Western Region had lost a lot of its population compared to the height of the Mughal period. Earlier intensive agriculture had exhausted the land and yields were low, which combined with a scanty and uncertain rainfall, left the Upper Doab of this period subject to frequent drought and famine and with a low population density. Hence there had been little opportunity for the growth of a class of zamindars supported by rental income. The soil simply did not supply sufficient produce to sustain them. The village proprietors were thus of necessity also its cultivators; some, for the most part tightly-knit Jat kin groups even shared out the land equally among themselves in the *bhaiachara* tenure. [*Metcalf, 1979: 48*]

By contrast, many of the Eastern districts of the North Western Provinces presented at this time a picture of a rich well-watered agriculture, largely controlled by the dominant Rajput elites who had migrated to the area at the time of the Mughal invasions. The area had never been devastated by war to the extent of the Western districts and the population of the region was expanding via migration and the clearing away of the Tarai jungle.

The British in India, not only saw this as a land from which, as in the case of the early years of the East India Company, riches could be extracted, but in the initial years of actual British rule also saw themselves as having an almost evangelical mission to impose an Anglo-Saxon order on a country which they saw as having been subjected to a long period of misrule. Crooke, quotes one of the first Collectors from Cawnpur who wrote "The subjects in this part of the country are in the most abject state of poverty. Let the face of the country be

examined and there will hardly be a manufacture found or an individual in such circumstances as to afford the payment of a .tax. The whole is one desolate waste, in which tyranny and oppression have hitherto universally prevailed." This "civilising mission" of the British is reflected in many 19th century accounts and histories as is illustrated by the following extract fvrom Crooke. "It was such a country, with a people depressed by misgovernment, a Province lacking in all the essentials of civilised government, without roads or bridges, public buildings, courts, jails, police stations, schools, and hospitals, that the first generation of British officers set themselves to organise. We shall see that they made mistakes; in particular, the demands of the central government enforced an assessment of the land revenue which an exhausted tenantry were unable to meet. But we must consider the extreme difficulties under which they laboured, the magnitude of the task which was imposed upon them." [*Crooke, 1897: 131*] This latter sentence, as we shall show below has more than an element of truth in it.

3.1 LAND RELATIONS AND LAND: LAND REVENUE POLICY UNDER THE BRITISH

At their conquest, the British became administrative heirs to the whole complex system of land relations and revenue administration built up during the Mughal period. Endowed with a cultural heritage which recognised clear ownership rights to land, they were quite unable to comprehend a structure of land relationships which did not rely on the concept of ownership. Unable to conceive that cultivated land could belong to no-one, the British insisted there were landlords when no such persons existed. "So strong was the effect of prevalent ideas, that years afterwards, when the tenures of village bodies in the North Western Provinces, and their peculiar constitution, were discovered, our public officers could with difficulty realize this

state of things; and they kept on writing as if some one person in the village must be the proprietor."[*Baden-Powell, 1892: 187*] This, combined with the pre-existing pattern of zamindari rights bequeathed by the Mughals, was to have profound and lasting consequences for the development of land relations in what were to become the Western and Eastern Regions of UP.

The land tenure situation in the state was divided into three basic areas. In the Ceded and Conquered provinces there was with the exception of a few districts, e.g. Aligarh and Etawah in the West, and Allahabad, Gorakhpur and Basti in the East, a land tenure system based on village proprietorship of one kind or another. In the Benares Province in the East large landholders were usually the rule. This was because the Permanent Settlement of 1795 had settled the revenue with the large zamindars who, as we showed in the previous section, had become dominant in the latter part of the Mughal period. This in effect had simply institutionalised the pre-existing situation. In India, when central power was strong as at the height of the Mughal Empire, the revenue would be collected directly from the peasants by tax collectors of the Emperor. When central power was weak as was the case when the Empire was in decline, the revenue would be collected by a local ruler of old or recent origin, stepping into the vacuum. Alternatively, a common arrangement was that where central power could not muster sufficient force or influence to control a particular area, the right to collect the revenue would be passed to a local leader (e.g. a Hindu raja) who would pay a certain annual sum to the central power and live off the difference between that and the amount collected from the peasantry. The arrangements, therefore reflected the growth of an intermediary between the state and the peasant who was an embryonic landlord, although property ownership as

such did not exist. It was this situation that the British reinforced and legitimised in the Permanent Settlement, by giving actual property rights to large Zamindars, at the same time eradicating any subsidiary customary rights held by the peasants at village level. [*Clift, 1983: 22*] The zamindar overlord contracted with the government to pay a yearly sum fixed in perpetuity, and in exchange became the virtual owner of the land. It was presumed that the zamindar, to whom any improvements in the productivity of the land would accrue, would expand into surrounding waste lands, employ the best agricultural methods, and invest. The government reserved the right to protect the interests of those under the zamindars, but it was thought that the latter would reach a fair understanding with their tenants since it would be to the zamindars' interests to encourage tenants to increase the productivity of the land. The large areas as yet uncultivated seemed to provide protection to the tenants, for it was felt that the zamindars would have to compete among themselves to attract tenants. The Company believed that a permanent settlement would create a prosperous and highly cultivated Region. Things did not turn out that way, but, writes Neale ". . . it was a reasonable expectation at the time."[*Neale, 1962: 55*] In Oudh, large landhholders, mainly taluqdars, were also prominent. In general, moving from West to East in the state small landholders, who were usually owner-cultivators, gave way to large and small landlords. [*Clift, 1983: 23*]

The element that distinguished the settlements in the North-Western Provinces, writes Neale, was that they were made with bodies of village co-sharers. This, as we shall show in subsequent chapter was to have a profound effect on the development of those areas where this was the case. "As early as 1795 the British began to recognize

the complexity of Indian land tenures, although it was many years before there was real understanding of the native system, and by that time it was too late to do anything about it."[*Neale, 1962: 56*]

3.2 THE CEDED AND CONQUERED DISTRICTS - WESTERN UP

"If the conditions that greeted the British in the Conquered and Ceeded Districts were chaotic, the results of early policy were disastrous. The settlements between 1801, and 1822 were marked by mismanagement, overassessment of the revenue, forced sales of land in arrears of revenue, revenue farming to the highest bidder and settlement of the revenue with the wrong persons. Negligence and understaffing on the British side were matched by fraud and deceit on the Indian side".[*Neale, 1962: 56*] A situation which is not surprising in view of the depredations of the Maratha Wars in the Region, and the British misunderstandings of the native land systems.

In the Ceded and Conquered Districts the British found, although it was not at first fully recognised, that the rights enjoyed by peasants at the village level were substantially unaffected by the growth of intermediaries and that where intermediaries had arisen they had not managed to extinguish the customary rights of the peasants. Essentially, therefore, control of the land and of the right to collect and pay the revenue resided in the village communities. In each village, rights to land were generally shared among the members of a particular caste which had managed to establish its dominance in the village. The dominant caste had arisen as a result of a series of invasions from outside the state that had occurred in the distant past. Thus the Jats were predominant landholders in the far West of the State (approximately the area of the Conquered Districts). Elsewhere in the state Rajputs were predominant, sharing the land with the Brahmins. [*Clift, 1983: 23*]

The basic form of village community among the Jats was the *bhaiachara* community or "brotherhood" the distinguishing feature of this form of land ownership was that the members were themselves cultivators and that land was divided not by ancestral shares, but on the principle of equal division. Inheritance of land as such did not exist, but rather custom determined the allocation of land between different members of the group. Periodically, land would be realloted to give the requisite share of land to each member of the community. This process of division employed also the presence of some means of democratic and concensual control of the affairs of the community. A related form of village community, perhaps caused by the breakdown of the bhaichara form was known as pattidari. Here land, rather than being held in common, was divided up amongst the members and was subject to the laws of inheritance, i.e. based on ancestral shares. Many villages, however, showed traces of both types with some land being held in common and some divided. [*Clift, 1983: 23*]

A Minute of Holt Mackenzie describing the tenures of Northern India in minute detail in 1819 became the basis of policy in the North Western Provinces for many years. [*Neale, 1962: 58*] This was later codified in the Important Regulation VII of 1822. The essence of this was to stabilize the revenue, equalize its burden among the estates and the cultivators, amd more importantly to accurately record each and every holding and the rights of everyone having any claim in a holding. From this time on, the record of rights served as the basis for assessment and was regarded as prima facie evidence that the recorded owner was in fact the owner. Before Regulation VII whoever signed to pay the revenue became the owner. After Regulation VII degrees and types of ownership other than that of revenue payer were

recognized and afforded the protection of law. The record of rights served as a title deed. [*Neale, 1962: 61*] Most importantly it created occupancy tenants after 12 years continuous tenancy. Occupancy tenants had always existed, but Regulation VII gave them legal status. This gave the cultivator a prescriptive right to remain on the land. By 1856 this principle had become so generally acknowledged that the Board of Revenue laid it down as a matter of course that immunity from summary ejection consisted simply in independent occupancy for 12 years and looked ahead to growth of a transferable title on the part of the cultivators. The policy generally followed under Regulation VII was to settle with the joint body of village owners and grant an allowance of 22.5% of the revenue, later reduced to 10% to superior taluqdari claimants. [*Neale, 1962: 61*] Where rajas, zamindars and taluqdars had acquired landlord status but a distinct village community survived beneath them there was a settlement with the community clearly stating its rental obligations. [*Neale, 1962: 62*] This was particularly beneficial to the cultivating communities of the Western Region, as it effectively provided them with security of tenure over their holdings. As we shall show in subsequent chapters, this secure pattern of tenure for the peasantry of the region laid down by Regulation VII, was absolutely central to the subsequent development of agriculture and relations of production in the region. Legislation throughout the 19th century, and into the twentieth, culminating in the Zamindari Abolition Act of 1951, were essentially simply extensions of Regulation VII - and did in fact no more than reinforce the position that was laid down in 1822. Security of tenure for the peasantry, was to have profound effects upon the class structure of the region, effectively reinforcing the position of the middle peasantry, laying

the foundations for the subsequent development of agricultural capitalism in the Western Region, and as we shall show, largely determining the pattern of asset, income distribution and poverty that is the subject of this work.

3.3 THE EASTERN DISTRICTS

The situation developed quite differently in the Eastern Region. In two areas, Benares and Oudh, British policy actively assisted in the maintenance of the landlords' social and economic control. As we have already shown, the British institutionalised the system whereby large zamindars acted as intermediaries between the peasants and the state in the Permanent Settlement of 1795 in Benares Province. In so doing they gave actual property rights to large zamindars, eradicating any subsidiary customary rights held by the peasants at the village level. In those Eastern Districts which fell within Oudh, British land policy was a fiasco, heavily influenced, after the Mutiny of 1856, by a desire to placate the powerful taluqdars. As a result security of tenure was denied to the multiplicity of tenants and sub-tenants in the province. In those areas of the Ceded and Conquered territores which fell within the Eastern Region of the United Provinces, British Land policy aimed at enhancing the position of occupancy tenants was ineffective in the face of the strength and rigidity of the existing land system , so that large landlords were able to continue making a comfortable living and small zamindars to scrape a living from rent and usury throughout the British period. [*Clift, 1983: 60*]

Unlike the cultivating proprietors of the West, the cultivator in the East was only attached to the land as a labourer or a tenant and did not pay much attention to whom rent was paid - whether it was a small village zamindar or a larger taluqdar. The village zamindars,

faced with the high revenue demands of the British were forced to sell their land and therefore unable to resist absorption into larger estates, although this did not necessarily deprive them of their privileged position within the village community as sub-proprietors or as privileged tenants. [*Clift, 1983: 63*] Furthermore, whereas Regulation VII of 1822 had enhanced the position of the cultivating communities of Western UP, it had the effect, particularly, in the Eastern Region, where landlords abounded, of increasing the number of evictions. By promising that in the future occupancy rights would accrue, the landlords now know that if they left a cultivating tenant on the same plot for twelve years that tenant could acquire occupancy rights. Act X of 1859, Section 6 further codified the legal status of holders of occupancy rights, which were heritable but not transferable, and limited a landlord's right to enhance the rent to just three grounds, i.e., that the occupancy tenant paid less than the prevailing rent paid by other occupancy tenants in similar conditions, that the produce or productive powers of the holding had increased for reasons other than the tenant's own efforts, and that the area of the holding could be shown by measurement to have increased. Inevitably this too led to increased evictions as landlords saw quite clearly that they could prevent the successful operation of the prohibition on increasing the rent by evicting tenants during the 11th year. [*Neale, 1962: 55*]

In this way during the British Period, in Eastern UP there grew up a system of land relations which was polarised on the one hand between a class of non-cultivating landlords, and under-proprietors, dependent upon rent and usury for their incomes, and on the other, a class of tenants-at-will and sub-tenants who did not share in the security of tenure enjoyed by the occupancy tenants of the Western

Region. As in the Western Region, this was to have a lasting effect upon the subsequent agricultural development of the region. The semi-feudal mode of production and class relationships that such a polarisation engendered in the Eastern Region have been pivotal in determining the distribution of land, capital, assets, and incomes, and the pattern of poverty which form the subject matter of subsquent chapters.

4. CAPITAL INVESTMENT BY THE BRITISH IN THE UNITED PROVINCES

In terms of their economic development the Western and Eastern districts of the United Provinces were profoundly, and disparately influenced by British Capital Investment Policy.

Between 1830 and 1880 the Eastern Jumna, Upper and Lower Ganga and Agra canals were constructed, irrigating large areas of Meerut, Rohilkhand and Agra Divisions of what is now Western UP. They were built partly because of the ease with which water could be tapped but more importantly because it was envisaged that they would show a good return on investment. Indeed, as anticipated, irrigation encouraged the development of commercial crops, sugarcane, cotton, indigo and wheat for export to Great Britain and Europe. Thus, from the point of view of the Government of the time canal construction in the Western region proved highly advantageous. Not only was a good return achieved on the investment itself, and a source of primary commodity exports to Britain opened up, but by raising the productivity of the land it was able to maximize the land revenue it could demand from the cultivators of the soil. [*Whitcombe, 1972: 63-64*] In addition to these purely economic considerations there is not doubt, that in its self-imposed role of benevolent paternalism, the British genuinely believed that with the building of

canals, they were conferring very great benefits on the people, and in particular, protecting them from the worst ravages of famine. This is a view which continued to be reflected in the writings of 19th century retired civil servants such as Crooke who states confidently that "One of the greatest boons which any Government has ever conferred on the people is the system of canals.[*Crooke, 1897: 142* This is something of an overstatement, but reflects the attitude of the times.

It was not until this century that public irrigation was extended into the Eastern Region of UP on any significant scale. With the greater pressure of population on land, and the deadening effect of the prevalent zamindari system it was perceived by the British that the returns to investment in canal construction in the region would not match those in the West. There was also the added factor of powerful opposition from the taluqdars of the region who considered that canals would interfere with their tenants and the management of their estates, and whom the British did not wish to alienate. This latter factor was important in delaying the construction of the Sarda Canal which extends into Eastern UP by more than 50 years. First mooted in the 1870's, it was not eventually completed until 1926. During the 19th century, and indeed well into the Twentieth, what irrigation did exist in the Eastern Region was supplied by tanks, dug wells, and jhils. [*Clift, 1977: A84*] There has been much written about the impact of canal irrigation on the rural economy of Western UP. Elizabeth Whitcombe [*1972*] took a somewhat pessimistic view of the effects of large-scale irrigation works on peasant economy. She saw it as highly disruptive to the traditional pattern of agriculture which depended upon wells for irrigation and was oriented largely towards the production of food crops for home consumption. Canal

irrigation encouraged the cultivation of commercial crops for export, in her view, at the expense of staple food crops and produced large areas of land made uncultivable as a result of salinity. The overall impression of her book is that the peasantry of Western UP were no better off as a result of canals, and would have retained greater control over the agricultural environment if they had continued to use traditional well irrigation which was anyway in abundance in the canal tracts.

This pessimistic view was challenged by Ian Stone. [*1984*] He takes issue with Elizabth Whitcombe, and concludes that far from having a detrimental effect on peasant economy in the Western Region, canal irrigation, contributed not only to the overall economic dynamism of the region, and in this respect was of crucial importance in determining the present differential development of Western and Eastern UP, but did indeed have a beneficial effect for the majority of the peasantry in the region. Despite the fact that canals were built in areas where wells were already abundant, it is Stone's contention that they still contributed to substantial increases in agricultural productivity in general in these areas. There is the obvious point that they supplied more water in a given time period, but there is also the fact that they freed scarce human and draught animal labour from the highly human and animal labour-intense task of traditional irrigation via wells. Resources, thus released, could be used more productively in other agricultural operations, and thus contributed towards an overall rise in agricultural productivity. There was also the important point that it also contributed to the levelling out of the labour-intensive peaks in the agricultural calendar. [*Stone, 1984: 295*] The increased out-turn in crops in its turn encouraged the use of more efficient capital in complementary

agricultural operations, such as the improved cane crushers cited by Stone as being widely introduced into the Western districts in the 1880's. [*Stone, 1984: 296*]

By contrast Stone saw a situation similar to Geertz's "agricultural involution" occurring in the Eastern Region. In the early 19th century it had been the Eastern Region that was relatively monetized, and Azamgargh in particular was heavily committed to commercial crops and manufactures, receiving its raw materials and food from adjoining areas. The great commercial centres were strung along the major river routes, through which local trade and the movement of indigo, sugar, opium, and cotton to distant markets took place. [*Stone, 1984: 286*] "A striking reversal of fortunes took place in the post-Mutiny period" says Stone when

> "the eastern region went through a process similar to Geertz's 'involution'. As population growth far outpaced the expansion in net cultivated area, the ecological setting of these eastern districts - fertile soil, generally reliable and adequate rainfall, favourable conditions for the construction of cheap wells - enabled productivity per unit area to be increased in line with the population. The process was 'involutional' rather than developmental due to the fact that no basic reorganization took place: traditional inputs were simply increased within the same overall framework. The basic ingredient of this effort was the more thorough application of labour, which was directed at improving water control, land preparation and weeding operations, and the juggling of crop combinations to achieve the required levels of food intake and cash-earning produce. Under such a strategy, output per unit of labour did not increase. As population pressed on land resources and relative factor scarcities shifted accordingly, the response was a general substitution of heavy- for light-yielding crops." [*Stone, 1984: 287-288*]

There is much to be said for Stone's view. On the basis of what we know to have happened in terms of economic development in the century and a half following the start of canal construction in the Western Region, then it seems beyond dispute that they raised agricultural productivity in that Region via some such mechanism as outlined by Stone. Whitcombe's viewpoint that they did little to

improve the position of the peasantry is really not tenable when we compare the economic development of the Western Region with that of the Eastern Region over the 19th and 20th centuries. While, as we have already stressed, relations of production as embodied in the way the British settled the revenue, were to be crucial to that differential development, the forces of production, particular as embodied in the construction of canals, are also fundamental to the differential development of the regions. The provision of assured irrigation via canals in the 19th century compensated for the Western Region's less favourable climatic conditions, and redressed the balance which for centuries had rendered it a less agriculturally productive area than the Eastern Region. Given their security of tenure, the construction of canals in the Western Region, gave the peasantry both the means and the incentive to drive up the productivity of their land - a process, which as we shall show, has continued.

5. POVERTY AND FAMINE IN THE BRITISH PERIOD

For what we know of conditions in the United Provinces during the British period we are reliant upon the records left by the administrators themselves, such as Famine Commission Reports, Settlement Reports and District Gazetteers. The British believed they were bringing untold benefits to the economies and people in the regions in which they directly intervened. They therefore saw the construction of the huge canal network in Western UP as a particularly beneficial example of their benevolent overlordship. As a result, may of their accounts paint an exceptionally rosy picture of such areas in marked contrast to the apparent backwardness of areas where the British presence was not so obtrusive. When using such

contemporary records, therefore, we need to bear in mind that the bright pictures may not be quite so bright nor the bleak pictures quite so bleak as they are in fact portrayed. However, with that proviso, these records can provide us with some indication of the relative level of development and prosperity of the regions of UP in the British period which is available from no other source.

Famines afflicted the North Western Provinces of British India just as they had the same region in the Mughal period. During 1803 hail storms followed by a scanty monsoon and a failure of the cold-weather rains "sufficed to plunge the most opulent districts of the Lower Doab and Rohilkhand into bitter distress, and to entail upon the state a loss of revenue estimated at £300,000. Again in 1837-38, five successive bad years culminated in a famine which laid waste the greater part of the Doab and Rohilkhand, cost the state a million sterling "and the people not less than 800,000 lives." [*India Papers 98, 1870: 1*]

A famine occurred in 1860-61 and another covering the period from 1868 to the beginning of 1870. It is this latter of which we have a detailed account. The statistical returns published by the government showed that in the year 1868-69 out of a total of 24 million cultivated acres nearly half was dry. [*India Papers 98, 1870: 2*] The irrigated area was almost completely concentrated in the Western districts of the Doab due to the canals. It was believed that great benefits were bestowed by these canals as testified by the Famine Report of 1868-9-8-70:-

> "In the district of Meerut scarcity was occasioned rather by exportation than by drought. This district is, humanly speaking, safe from the miseries of extreme famine, owing to its magnificant system of canal-irrigation and facilities for sinking wells. Altogether 56% of the cultivated area was irrigated, including 30% by canals. The people, moreover at the beginning of 1868 were prosperous. It was said that the cultivators had become so independent of the petty traders upon whom reliance is

usually placed for advances of seed and money, that they were hoarding accumulations of stores in the hope of more favourable markets. This prosperity enabled them to endure a season of high prices without acute distress." [*India Papers 98, 1870: 14*]

A similar picture of prosperity and freedom from want is painted in all the Western districts of the United Provinces where canals were important.

Turning to the District Gazetteers published in the first decade of the twentieth century, a similar picture of the prosperity of the districts of the Western Region is apparent. Taking Muzaffarnagur, for example, H.R. Nevill maintained that the agriculture of the district had reached avery high level and "may be said to have approached within measurable distance of finality". [*Nevill, 1903: 31*] Once again, the canal system was seen as particularly beneficial. "The extension of high cultivation, the increasing certainty of a fair return in agriculture, and the reclamation of many idle classes are among the benefits due to the canal, and to this should probably be added some improvement in the general state of living, in the credit for which the canal is entitled to share with other agencies". [*Nevill, 1903: 45*] By 1901 so called"valuable crops" covered more than 40% of the cultivable area in this district, with 33% accounted for by wheat, and 8.3% by sugarcane.

From 1869, the district was practically free of famines. The immunity enjoyed by the district being "very closely connected with the construction of various canals, the benefits derived from artificial means of irrigation having been conclusively proved by the test of actual experience."[*Nevill, 1903: 52*] At the time of revenue revision in 1872 it was cited that ". . . the agricultural population as a rule are in a flourishing condition and are improving year by year. The industrious Jat communities are especially well today and

no longer in debt; they are able to lay-by money by which to add to their possessions."[*Nevill, 1903: 94*]

Contrast this optimistic picture of agriculture in Muzaffarnagar with the picture presented of the Eastern Districts in Famine Reports and Gazetteers. Returning to the 1868-70 drought and famine we find a most depressing account of the position in Allahabad Division written by a Board of Revenue Officer.

> "I found the poorer classes reduced to the lowest extremity - their cattle sold, their fields bare, and without means of existence other than found from wild bair or other berries, or that furnished by the few stunted plants of gram or barley that had not actually withered. The better classes, that is the smaller proprietors and the usually well-to-do cultivators, were reduced to want and brought into debt, but they have the means of credit to tide over the year, which the poorer classes have not." [*India Papers 98, 1870: 46*]

A similar pessimistic account of agriculture is presented in Nevill's Gazetteer of Gonda District published in 1905. "Though in its natural conditions the district is not unfortunate, agriculture is still in a backward state "[*Nevill, 1905: 31*] Nevill saw the reason for this as not only being due to the very straitened circumstances of the large estate holders, but also due to the fact that the tenants were "of a very inferior description by reason of the great numerical preponderance of the higher castes" whom he maintained were "notoriously bad husbandmen with large holdings carelessly tilled by hired labour". This was despite the fact that the district was "on the whole, admirably provided with the means of irrigation". In the absence of canals, wells were the principal means of irrigation, but "The zamindars are as a body jealous of permitting tenants to build wells, and insist on a *basdawa* or renunciation of rights before giving permission. [*Nevill, 1905: 42*]

A system of *sawak* labour, in which a member of a lower caste, for a fixed sum of money, almost invariably required for marriage

expenses, binds himself in serfdom to the zamindar until the loan be repaid - "a contingency which hardly ever occurs in actual experience . . ." was a predominant feature of the agricultural social structure of the district. The cultivators are commonly indebted, and according to Nevill a large proportion of the population "could hardly manage to exist without recourse to the lender of money or grain". The cultivator is often compelled to sell his wheat or grain at harvest in order to pay the rent and to rely on the *bania* for an advance at the next sowing time. "The rate of interest in cash loans varies according to the circumstances of the borrower. The most common rates are between Rs. 2 and Rs. 3 per cent, per mensem, a very high charge, though the loan is as a rule made for a short period only and for a small amount, while the risk involved is considerable. When security is offered the rate is materially reduced, and a *taluqdar* may be able to secure a loan on his estate at no more than six per cent. In the case of grain advanced either for food or seed the interest consists mainly of the difference in the market rates at the time when the transaction takes place and at harvest, when repayment is made. The system, known as "up" is frequently adopted for a short period, when the stock is running low a few weeks before harvest. In this case the cultivator borrows a sum of money on condition of repayment when the crop is reaped; the loan is redeemed in grain at the market price then prevailing, while 5 or 10 sers are added on each rupee by way of interest, and that at a considerably higher rate."[*Nevill, 1905: 51*]

The bulk of the land is owned by 25 individual taluqdars with 61.8% of the district. Coparcenary communities make up 30.8% and individual zamindars 6.5% There are a very large number of

subordinate tenures and minute subdivision of holdings. [*Nevill, 1905: 113*]

The situation in the far eastern district of Gorakhpur was very similar to that of Gonda. According to Nevill, writing in 1909, "from the dawn of the historical era the inhabitants had been . . . in a state of hopeless subjection to the local Rajput chieftains, and under such circumstances progress was not to be expected in a remote tract, devoid of all means of communications with the outer world and cursed with a bad climate."[*Nevill, 1909: 38*]

It is somewhat ironic that Nevill used the bad conditions in the Eastern districts to illustrate the benificence of British rule. "Although progress has necessarily been retarded by local conditions, the expansion since the first advent of British rule has been none the less remarkable. The substitution of relative security for chaos and tyranny caused cultivation to advance by leaps and bounds "[Nevill, 1909: 40] "When the district was first made over to the East India Company the cultivators of the soil were the mere serfs of the Rajas and their immediate dependents . . Since that time their condition has improved in an extraordinary degree . . . But as late as 1869 it was reported that the tenant right was non-existent, and the universal opinion prevailed that tenancy lasted only so long as the landlord pleased. Indebtedness exists everywhere. Improvement in the cultivators material prosperity is less obvious for wages are very low in this part of the country and their rise has not kept pace with the increase in the cost of living."[*Nevill, 1909: 136*]

CONCLUSIONS

In this chapter we have tried to place those economic and social differences between Western and Eastern UP which have a bearing on the generation of poverty and inequality in the two regions in some form

of historical perspective.

It is clear from the extracts quoted above, that poverty was a prevalent feature in both regions during the 19th century. It is also apparent that as today, the extremes of deprivation, were more frequently to be found in the Eastern Region.

Throughout history the two regions were affected differently by historical events which resulted in them developing in different ways. We have shown how, during the Mughal Period, the proximity of the Western Region to the seat of Government, and its greater involvement with the market, and hence commercialisation, resulted in the progressive exhaustion of the soil of the region, so that it was unable to sustain a powerful class of intermediaries in the countryside. This differed markedly from the situation in the East, where a well-watered and fertile agriculture, far enough away from the administrative centre of the Empire to prevent the interference of central authority, gave rise to a powerful class of intermediaries between the cultivators and the state.

This was to have important consequences upon the development of land relations in the two regions. Whereas in the West the cultivators of the soil were frequently also its proprietors, the situation in the East was such that a large class of tenants-at-will paid rent and revenue to a whole plethora of intermediaries.

With the subsequent arrival of the British these arrangements became incorporated into the Settlements and took on the status of legally enforceable contracts. As will be shown in the next chapter, this was to have profound effects on the development of the landholding structure and by implication of production relationships in the two regions.

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CHAPTER 4

LANDHOLDING AND TENANCY

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1. BACKGROUND TO ZAMINDARI ABOLITION

The last chapter showed how British administrative and land revenue policy had quite profound effects on the pattern of land relations in what was to become the state of Uttar Pradesh. Whereas the position of the "cultivating raiyats" of the Western districts was enhanced as a result of legislation conferring upon them security of tenure and rights of occupancy to the land they cultivated, the Settlement in Oudh and many of the Eastern Districts resulted in strengthening of the position of landlords and intermediaries vis-a-vis the cultivators.

Zamindars and Taluqdars acted mainly as intermediaries between the state and the tillers of the soil. Their rights were permanent, hereditary and transferable so they had the right to hold land in perpetuity subject to the payment of land revenue, determined at the time of Settlement. The Right was extremely comprehensive, and entitled them to use land in any way they liked. They were free to cultivate it themselves or to let it to tenants, to use it for an agricultural or non-agricultural purpose, or to keep it vacant; to manage it well or to let its resources be depleted, i.e. the only obligation imposed on them was that of the payment of land revenue. [*Singh & Misra, 1964: 21*]

During the period 1911 to 1931 there was a significant increase in the proportion of non-cultivating tax farmers and rent receivers - zamindars and other intermediaries who chose not to cultivate the land themselves. Between 1921 and 1931 they increased from 18% to 26% of all agriculturalists in the United Provinces, whereas cultivating landlords and tenants decreased from 84% to 76% and agricultural labourers increased from 134 to 192 per thousand of the population.

[*Zamindari Abolition Committee Report, 1948: 6*] Indeed, at the time of Zamindari Abolition in 1952 only about one-fifth of the land in UP was actually cultivated by the proprietors themselves, and much of this was concentrated in the Western Region of UP as a result of earlier British Settlements.

The distribution of zamindari hoildings by size class just prior to Zamindari Abolition differed markedly between the Eastern and Western Regions of the State as we see from the table below, based upon data from the Zamindari Abolition Report.

Table 1
Percentage Distribution of the Number of Zamindars and Area Owned by them according to Size and Region - 1951-1952

	Western Region				Eastern Region			
Size of Holding owned by Zamindars	Zams	Cum h'holds	Area Owned	Cum Area	Zams	Cum h'holds	Area Owned	Cum Area
below 5 acres	45,41	45,41	3,90	3,90	85,19	85,19	11,94	11,94
5-10 acres	21,43	66,84	7,70	11,60	5,16	90,35	5,39	17,32
10-25 acres	14,87	81,71	10,70	21,77	4,86	95,21	9,91	27,23
50-100 acres	3,94	95,19	11,97	48,04	1,15	98,79	10,93	49,49
100-200 acres	2,97	98,16	17,44	65,48	0,67	99,46	10,23	59,74
200-500 acres	1,31	99,47	15,73	81,22	0,24	99,70	12,55	72,29
500-1,000 acres	0,44	99,91	13,40	94,52	0,24	99,94	19,37	91,66
1,000 & above	0,09	100,00	5,38	100,00	0,06	100,00	8,34	100,00

Source: *Singh & Misra, 1964: Table 4, 213-214*

The concentration of landholdings in the petty-zamindar class with less than 5 acres was particularly marked in the case of the Eastern Region where more than 85% of zamindari households fell into this category and owned between them just under 12% of the area. Although, holding zamindari status, these households were in the main small and marginal cultivators, whose holdings had declined continuously in size due to the pressure of population and inheritance customs in which land was divided equally between sons. Although their legal status would be altered by Zamindari Abolition, the provisions of the Act were not intended to affect the landholding

rights of this group. Rather, it was the large zamindars with very substantial holdings at whom the Act was aimed. In the Eastern Region inequality was extreme with a little more than 1% of zamindars with holdings above 100 acres owning nearly half the village area. This reflected the historical land distribution in Oudh and the Eastern Districts, and of the British settlement of the revenue with the pre-existing large *taluqdars* and *zamindars* whose estates remained intact on the death of the owner due to the custom of inheritance by a single heir. It was this group of landlord/rentiers whom the Act was primarily designed to dispossess, and who not surprisingly put up the most spirited resistence to it. [*Brass, 1980: 397*]

By contrast, zamindari land was less inequitably distributed in the Western Region where nearly 50% of zamindari holdings were in the size ranges between 5 and 100 acres, accounting for 44% of total area. This reflected the British land settlements in the region which frequently vested zamindari status in the hands of the *bhaicharya* or *pattidari* coparcenary village cultivating communities. As will be shown subsequently, far from losing as a result of the Act this group could be expected to have its land-holding status enhanced. The 45% of zamindari holdings below 5 acres accounting for just under 4% of the area would, as in the Eastern Region, be substantially unaffected by the provisions of the Act. Again it would be those zamindars with holdings above 100 acres who would be liable to lose most - in the case of the Western Region they represented 4.8% of the total but owned 52% of the land - a less concentrated distribution than in the East, but still quite extreme, and as we shall show below, one that

proved extremely irksome to the bulk of self-cultivating permanent tenants of the region.

In the table below we reproduce a table based upon a survey by Singh and Misra of 27 sample villages in each of the two regions. The data shows the percentage distribution of personally cultivated, labour cultivated and share-cropped zamindari-held land by size class of a sample of households in these villages in the Western and Eastern Regions of UP, just prior to Zamindari Abolition, i.e. in 1951-52.

Table 2
Percentage Distribution of Area in the Cultivated Holdings of Sample Households before Zamindari Abolition

	Western Region			Eastern Region		
Size Class acres	Personally Cultivated	Labour C'tvted	Share Cropped	Personally Cultivated	Labour C'tvted	Share Cropped
	%	%	%	%	%	%
Below 3 acres	93,5	-	6,5	93,3	6,7	-
3-10 acres	93,1	3,3	3,6	88,0	11,0	1,1
10-20 acres	91,1	6,6	2,3	44,6	49,7	5,7
20-40 acres	80,7	14,3	5,0	7,1	92,9	-
Above 40 acres	15,2	78,3	6,5	-	88,2	11,8
Total	82,4	13,6	4,0	40,9	54,1	5,0

Source: *Singh & Misra, 1964: Table 14, 227-228.*

This survey classified a household and its holding as personally-cultivated if the household cultivated mainly through its own labour "although it may also have employed temporary or casual outside labour". On the other hand a household has been classified as cultivating through ouside labour if the holding has been cultivated mainly through hired labour engaged usually on a permanent or seasonal basis. [*Singh & Misra, 1964: 53*] We have no way of knowing how accurate or representative this data is, but it does portray some interesting trends, which back-up what is already known about the situation in the two regions prior to Zamindari Abolition.

There are some interesting and significant regional differences

in the proportion of different sized holdings in the three categories of holdings represented in the table. In the Western Region more than 90% of the land in each of the three size classes up to 20 acres was classified as being personally cultivated, thereafter there was a decline to just over 80% for the 20-40 acre group, and down to 15% for the above 40 acre group. By contrast the decline in the proportion of personally cultivated land is much steeper in the Eastern Region. Down from about 90% for size classes up to 10 acres to just under 45% for the 10-20 acre size class and to 7% for the 20-40 acre group. Above 40 acres, there was no personal cultivation in this region. Overall, just over 82% of the zamindari area was classified as personally cultivated in the Western Region, compared to just under 41% in the Eastern Region.

This is once again a reflection of the earlier British land settlements, whereby it was not unusual for cultivators in the Western Districts to have the zamindari rights to the land settled directly upon them. In the East, although the 12% of zamindars with holdings below five acres would of necessity cultivate their holdings themselves, cultivation of zamindari land by hired labour was much more prevalent. It amounted to 54% of the total, compared to just 13.6% of the total in the Western Region. The proportion of share-cropped land amounted to 4.0% of total zamindari land in the Western Region and 5.0% in the East. It was much more likely to be found on large holdings above 40 acres in the Eastern Region, where it accounted for 11.8% of the total cultivated zamindari area, compared to just 6.5% for the West.

This is a pattern which continued to be reproduced long after Zamindari was abolished, and reflects the underlying structure of production relations in the two regions, at this time. By far the

bulk of the zamindari land in both regions was cultivated by tenants. However, there were important differences between permanent and sub-tenants. Prior to Zamindari Abolition there was an inverse relationship between the proportion of land held by permanent tenants and that held by sub-tenants. According to Singh & Misra's Survey, in the Western Region 79.7% of the land was cultivated by permanent tenants (average 1949-52) compared to 65.9%in the Eastern Region. According to the same survey, the area under sub-tenancy in the Western Region came to only about 6% compared to 11% in the East, by far the bulk of which was held by sub-tenants who cultivated either the sir and *khudkasht* (home-farm) land of zamindars (the significance of which will become clear shortly), and comprised 40% of the total, or held the land without consent. (43% of the total). This differential distribution between permanent and sub-tenants in the two regions, was to have profound effects on the post-Zamindari distribution of owned and tenanted land between Western and Eastern UP.

2. THE POLITICAL BACKGROUND TO ZAMINDARI ABOLITION

Walter Neale speaks of there being a strong feeling among Indians that agricultural conditions actually deteriorated under British rule. [*Zamindari Abolition Committee Report, 1948: 26*] This attitude comes across strongly in the Report of the Zamindari Abolition Committee who maintained that while "the net area sown has remained practically steady . . . total production has diminished . . . Thanks to the British policy of retarding India's industrial development, agriculture stagnated and deteriorated, its yield steadily declined."[*Zamindari Abolition Committee Report, 1948: 26*] Indeed, throughout the Zamindari Abolition Report there is an assumption that

the economy deteriorated under British rule. [*Neale, 1962: 143*] However, this conclusion needs to be questioned. · Neale considers that the history of agriculture in the United Provinces can be split into two periods: one of growth during the nineteenth century and one of stagnation if not decline in the twentieth. Using data from the Royal Commission on Indian Agriculture, 1926, for Muzaffarnagar District Neale shows that between 1827-40 and 1897-1921 the value of the outturn per acre increased by 1,000 per cent, from Rs. 8.1 to Rs. 81, and it is his view that "the nineteenth century was a time of increasing prosperity if still a time of absolute poverty. By the 20th century the cultivated area reached a peak and increased no farther. The Zamindari Abolition Committee claimed that gross produce fell despite the maintenance of acreage and an increase in irrigated area during the 20th century. However, as Neale points out, there was a tendency to understate output which inevitably became incorporated into the available data. Furthermore "It would also have been good nationalist politics in the 1920s and 1930s to understate output and thus reflect badly on the Imperial administration".[*Neale, 1962:. 145*] Whatever the truth of the matter, "and the only firm conclusion which can be drawn from available information is that there have been no large changes in total agricultural output during the twentieth century" the Zamindari Abolition Committee stated the need to increase output an important justification for land reform. In its report the Zamindari Abolition Committee viewed the misuse of capital as a result of the zamindari system of tenure and the lack of incentive resulting from that system of primary importance in delaying the development of agriculture. [*Neale, 1962: 150*]

The Zamindari Abolition Act of 1952 was in fact, the culmination of a concerted campaign by Congress Politicians for land reform in the state which originated at the beginning of the 1930's. The latter 1920's had seen several years of poor crop out-turn due to unfavourable weather conditions. In addition the period from 1929 onwards, during which the world economy was hit by Depression, was characterised by a serious slump in grain prices which reduced the earnings of the cultivators. As a result of a combination of low yield and low price they found it increasingly difficult to pay their rent to the landlords. At the same time the land revenue that the landlords (zamindars) were obliged to pay to the Government had been fixed during a year of comparatively good harvests - so that the zamindars found it increasingly difficult to realize these demands in poor years. The overall result was a squeeze on the tenantry. Land rents, anyway, had continuously increased during the 20th century, as pressure on land increased "and rack-renting had become such a marked evil of the system that the Government had to adopt legislation several times" to protect the tenants against enhancement of rents and ejectment. As a result, the two decades of the 1920's and 1930's were a period of considerable agrarian unrest in the United Provinces.

There is no doubt that persecution and ill-treatment of the tenantry by their landlords did occur during this period, particularly in districts where the zamindars and taluqdars were powerful - such as Oudh and the Eastern Districts of the United Provinces. The Congress Committee, in their Report on Agrarian Distress in the United Provinces give numerous examples of feudal oppression. "In Oudh the tenant was looked upon as a mere vassal. Some proprietores smarted even under the very moderate restrictions which found place in the statute book although they were not always enforced with rigidity.

The notion that the tenant was no more than a beast of burden was still cherished by some". [*UP Congress Committee, 1931: 44*]

This then, is the background against which we should view the agitations of Congress Party members during the 1930's and 1940's which led ultimately to the setting up of the Zamindari Abolition Committee in 1946. Their Report, published in 1948 was quite vehement in its condemnation of the landlord class, on whom it pinned the blame for the low productivity and poverty in agriculture:-

> "The growing pauperisation of the toiling masses became a serious problem and it forced thinkers and economists to the conclusion that in India, as in many other parts of the world, landlordism is an inequitable anachronism; that land can no longer be allowed to be treated merely as a source of income; *that it is for the use, and therefore it should be regarded as a definite and limited means for supplying labour to a category of citizens whose occupation in life is the tilling of the soil.*" [*Zamindari Abolition Committee Report, 1948: 340*]

In order to fully recognize the implication and intention of Zamindari Abolition in UP it needs to be placed quite firmly in its political and regional context. The Ruling Congress Party in UP drew its leadership from leading proprietary groups and it is no coincidence that Charan Singh, one of the principal proponents of Zamindari Abolition and a Member of the Committee, was himself a member of the Jat cultivating caste of Western UP, and that it was this caste which was particularly likely to gain as a result of zamindari abolition. In a pamphlet published in 1949 Charan Singh clearly set out what he believed to be its principal benefits.

> "The oppressing landlord who has tyrannized without limit and the oppressed tenant who has sorrowed too long - both would have disappeared; in their place will arise a peasant who will be at once a proprietor and a wage-earner - a position of mixed interests that offers a challenge to all Marxist theories. The *bhumidhar* of our conception will provide an unshakeable base of democracy and will stand four square to all evil, disruptive winds that may blow from any quarter. [*Singh, Charan, 1949: 14*]

In addition, Charan Singh was bitterly opposed to the alternative strategies of co-operation and collectivisation of agriculture which while they would have benefitted the small and marginal holders and agricultural labourers who had suffered most from the excessive exactions of the landlord class, would have proved a threat to the continued existence of the more prosperous self-cultivated ownership holdings of the rich and middle peasantry of the Western districts.

> "Pooling of labour resources, involved in collective farming, will reduce the self-regulated peasant of today to a labourer, which situation he will resist to the bitter end." [*Singh, Charan, 1949: 11*]

Charan Singh's own family origins were "in the lower reaches of the rich peasant stratum . . . those origins among an industrious and well-to-do peasantry in western UP were of great significance. His sympathy for and appeal to the rich and middle peasantry of Northern India were deep and powerful"[*Byres, 1988: 143*] It is important to remember this in the context of Charan Singh's vehement opposition to collective farming as a solution to the agrarian problems of UP. "If, for Jats, peasant proprietorship is the ideal condition, while participation in physical labour is commonplace, the agricultural labourer's lot is anathema."[*Byres, 1988: 143*] Quoting Beteille he observes that 'the Jats of Northern India . . . would accept the role of sharecroppers but not that of agricultural labourers, however destitute their condition'. "To be a landless labourer and to labour directly for others as a means of survival is to be demeaned."[*Byres, 1988: 143*]

Given previous agrarian unrest, and the Government's desire to keep a lid on the possible eruption of discontent among the most disadvantaged of the rural population i.e. poor tenants and agricultural labourers, the Act can also be viewed as "a framework for

maintaining social and political stability".[*Johnson, 1975: 126*] The dominant peasant proprietors of the village, who stood to gain most from the Act, were "more efficient agents of social control than the multi-village landlord had been." They were a part of village life, knew the villagers personally and had close economic and social ties with them. By contrast, the influence of many of the big landlords had been exercised from a distance and had been mediated through the dominant castes of the village. By raising members of these castes to a position of complete dominance the Congress kept that part of the British Settlment which had enabled the landlords to rule effectively, and turned it to its own advantage. "Finally, the underprivileged, including landless labourers and very small landholders, were so dependent on the dominant peasant proprietors for employment and other services that they did not organize as a self-conscious class in opposition to the settlement." [*Johnson, 1975: 126*]

3. PROVISIONS OF THE ACT

The Zamindari Abolition Committee appointed in 1946 presented its report in 1948. The Report proposed that all "intermediaries", defined as "rent-receivers who do not perform any of the functions connected with agriculture, and who are entitled to that rent by virtue of owning superior rights or interest in land" should be abolished and their rights vested in the State. [*Zamindari Abolition Committee Report, 1948: 26*] The Act eventually came into force in July 1952 and applied to the whole of UP. Among its other provisions were included payment of compensation to intermediaries, the level of which was later unsuccessfully contested in the Courts by dispossessed zamindars; payment of a rehabilitation grant to small landowners dispossessed of their rights; the establishment of land

management committees or *Gaon Sabhas* and *Gaon Samajs*; the creation of new tenures with fixity of rights and possession to the tillers of the soil; the general prohibition of sub-letting and safeguarding of the interests of the existing sub-tenants; the prevention of subdivision of holdings; the formation of cooperative farms of uneconomic holdings; a ceiling on the future acquisition of holdings; a ceiling on existing holdings; no reservation of rights of resumption; assessment of land revenue on the aggregate holding area in a village; revision of land revenue not earlier than 40 years from the commencement of the Principal Act; collection of land revenue by Gaon Panchayats; vesting of common land in the village community.

Prior to Zamindari Abolition the main types of tenures were sir, khudkasht, fixed rate tenancy, exproprietary tenancy, occupancy tenancy and hereditary tenancy, although there were encapsulated within these legal categories many illegal and unrecorded sub-tenancies, not to mention widespread sharecropping. Indeed, for UP as a whole, one in every five cultivators was a tenant under a tenant, a tenant of sir or khudkasht, a sub-tenant or occupier of land without consent. This was particularly the case in the Eastern Region. Such tenants enjoyed little security of tenure and could be ejected from land by the principal tenure holder. [*Singh & Misra, 1964: 24*] The Act replaced the plethora of pre-existing proprietorial and tenurial categories with just three basic legal classes of landholding.

(a) Bhumidari

Under this tenure all the land under the personal cultivation of the zamindars (known as *sir* and *khudkasht*) would be transferred into what effectively amounted to an ownership holding by simple conversion.

Occupancy and hereditary tenants, who had the right to transfer their holdings by sale, would also be converted into bhumidhars.

Other tenants could acquire bhumidhari status on the payment of ten-times their annual rent.

(b) Sirdari

This applied to all tenants, including those occupancy or hereditary tenants who did not have the right to transfer their holdings by sale, and therefore were not covered by the provisions for conversion into bhumidhars set out above. Sirdari status was permanent and heritable, but not transferable.

(c) Asami

The tenure of the asami was created in order to provide a more secure status to those tenants who had only a temporary and unstable right upon the holdings they cultivated. The asami's rights were heritable but not permanent and transferable. The holding could not be bequeathed by will.

A temporary adhivasi tenure for tenants of sir and for subtenants was created for cultivators who did not acquire one of the regular tenancies. Adhivasi rights were to disappear as adhivasis purchased bhumidhari rights or surrendered the land, but in 1954 adhivasis were granted sirdari status. [*Neale, 1962: 229*]

In addition to these new landholding categories the Act provided for a limit to the size of landholding of 40 acres per person, with a restriction on future acquisition of land to 30 acres. This was subsequently reduced to 12½ acres by an amendment in 1958.

The difficulty of managing the land and collecting the revenue was increased by the new system of tenures. The work involved in admitting new cultivators to holdings was greater, and the number of cultivators enjoying direct relations with the state was larger. To meet these difficulties, the old revenue system and the new tenure system were fitted into the new system of local government, under the UP Panchayat Raj Act of 1947. A Gaon Sabha consisting of all the adults in a village or group of villages was to meet at least twice a

year. It was intended as the supreme organ of local government, electing a president, vice-president, and a *Gaon Panchayat* of thirty to fifty-one members. The *Gaon Panchayat* was to be in charge of common property, local public health, education, local amenities, local problems in general, and the administration of criminal and civil justice. The Zamindari Abolition Act fitted the new tenures into the framework of this village system. In each village, or other administrative area, a corporate body called a *Gaon Samaj*, and consisting of all adults in the area holding land as bhumidhars, sirdars or asamis was made the trustee of the state's interest in land. The act went on to make the *Gaon Sabha* a trustee for the *Gaon Samaj*, which had the duty of supervising, managing and controlling all *Gaon Samaj* lands in order to develop co-operative farming, to consolidate holdings, and to develop cottage industries. By this series of trusteeships the act was to give administrative power over local lands to the village government. When an interest in land was extinguished, the Gaon Sabha was to take possession and may admit anyone to the land as a sirdar where the land could be held sirdari, or as an asami where the land cannot be held sirdari. [*Neale, 1962: 231-232*] This act further consolidated the political dominance of those classes who already had a secure interest in land and whose position was consolidated by zamindari abolition by their transformation to Bhumidhar, Sirdari or Asami status.

Clearly, Zamindari Abolition and associated legislation was designed to benefit most those rich and middle peasants who either already held their *sir* or *khudkasht* (home farm land) as zamindari, or who as tenants already had occupancy or hereditary rights to their landholdings. As we saw in the previous chapter, in much of what is now Western UP, in the Upper and Lower Doab, the British in many cases

eventually settled the revenue (and hence the zamindari rights) with the actual tillers of the soil in the form of the coparcenary village communities. In addition, they settled rights of occupancy on the tenants - which was particularly important in Rohilkhand Division of Westerm UP where coparcenary communities were less common. [*Brennan, 1979*] Immediately prior to Zamindari Abolition the area held by permanent tenants was 78.7% in the Western Districts of UP, compared to 65.9% in the Eastern Districts which reflects the fact that many tenants in those parts of Oudh which now fall within Eastern UP were never granted full rights of occupancy. [*Zamindari Abolition Committee Report, 1948: 340*] Furthermore in these, and the extreme Eastern Districts of UP, and in the former Banares Province, which together now comprise the Eastern Region of the State, zamindari rights to much of the village land had accrued to the few taluqdar and Rajput families who historically controlled the area. It was therefore this group who had most to lose and who therefore put up the most spirited opposition to zamindari abolition.

In addition to the upper limit on bhumidhari holdings imposed by the Zamindari Abolition Act, a minimum landholding size of 10 acres had already been set in 1948. Although this was practically unenforceable it was clear that the Congress Reforms were not intended to aid the smallest and poorest peasant landholders. However, many of the statements made at the time of Zamindari Abolition and the general optimisim about its outcome clearly gave the impression that it was designed to benefit all cultivators. As such it presented a picture of being "all things to all men". Despite, the quite apparent social inequalities built into the Act it was considered to be revolutionary (or at least radical) by a majority of the rural population and socialists encountered great difficulty in mobilising

opposition against it. [*Johnson, 1975: 129*] This was important, for with the curtailment of the landlords' power it gave the real beneficiaries - the rich and middle peasantry of Western UP - the opportunity to consolidate their economic and political dominance in the countryside.

4. THE REGIONAL EFFECT OF ZAMINDARI ABOLITION ON THE STRUCTURE OF LANDHOLDING

The amount of land which a zamindar was able to retain as bhumindhari after Abolition depended upon the extent to which it was defined as his home-farm, i.e. his sir or khudkasht. There were very marked regional differences for this. According to the Zamindari Abolition Committee Report the figures for the year 1944-45 were respectively 15.8% of the total zamindari area in Western UP, compared to 22.8% in the Eastern Region. [*Singh & Misra, 1964: 44*] This difference is even more pronounced if we take Singh and Misra's survey figures for 1951-52, in which the proportions were 13.8% and 24.5% respectively, and clearly reflects the differential size distribution of zamindari holdings in the two regions as highlighted in Table 1, on page 147, in which we saw a concentration of land in the hands of large zamindars in the Eastern Region. The larger the land-holding the more extensive was the sir and khudkasht and also the more likely that this land was cultivated by sub-tenants.

Prior the Zamindari Abolition there was an inverse relationship between the proportion of land held by permanent tenants and that held by sub-tenants. Under the zamindari system sub-letting was resorted to a considerable extent both by zamindars in respect of their home-farm land and by tenants. Besides, some land was occupied without the consent of the principal tenure-holder and the position of

such occupants was as insecure as that of sub-tenants. [*Singh & Misra, 1964: 24*] In the Western Region 79.7% of the cultivated land was held by permanent tenants (average 1949-1952) compared to 65.9% in the Eastern Region. According to the same survey by Singh and Misra, the area under sub-tenancy, came to only about 6% in Western UP compared to 11% in the Eastern Region. In the table below we see how this was divided up between various categories of sub-tenure in the two regions.

Table 3
Area under Sub-Tenants in Sample Villages by Regions before Zamindari Abolition

Tenure	Western Region area under sub-tenancy		Eastern Region area under sub-tenancy	
	acres	%	acres	%
Tenants of Sir & Khudkasht	197	17.5	493	40.0
Sub-Tenants	426	37.9	191	15.5
Land held without consent	399	35.5	530	43.0
Tenants of Rent-free grantees	102	9.1	18	1.4
TOTAL	1,125	100.0	1,232	100.0

Source: *Singh & Misra, Table 10: 223*

The pattern of sub-tenancy varies substantially between the regions. Whereas the generalised category sub-tenants formed the bulk in the Western Region, accounting for nearly 38% of the total, this group comprised only 15.5% of the total in the Eastern Region. As much as 40% of the area under sub-tenancy in the Eastern Region was accounted for by that let out to tenants of *Sir* and *Khudkasht* compared to 17.5% in the Western Region. This is significant, for as already mentioned earlier, the amount of land that a former zamindar was permitted to retain was determined by the size of his *sir* and *khudkhasht*. As a result, widespread eviction of tenants of *sir* and *khudkasht* occurred, particularly in the Eastern Region, in the period before and after

Zamindari Abolition, as land-owners of this previously tenanted land took it back into personal cultivation. [*Singh & Misra, 1964: 163*]

A key figure in this was the village *patwari*: the keeper of the village records. In UP there were estimated to be as many as 27,000 patwaris at this time. The patwari, who had existed long before the arrival of the British, and normally had three to four villages in his charge; kept the village maps, records of boundary changes, of tenancies, of levels of rent and changes therein and of who was in possession of what land. [*Byres, 1988: 151*]

The position of the patwari had always been equivocal. On the one hand he was the servant of the landlord, who kept "records of transactions between his master, the zamindar, and the cultivators under his master's aegis - records, that is, of all claims arrears, advances and debt in which the zamindar's interests were involved."[*Whitcombe, 1972: 42-3*] On the other, he had an allegiance to the state - "precedent from time immemorial bequeathed him to Government as the keeper of the records, meaning those records which were in fact kept, being mostly zamindars' tax records".[*Whitcombe, 1972: 20*] Despite efforts by the British to establish his independence , "the patwari's low official salary and dependence upon the zamindar for payment constituted powerful reasons for his true allegiance never being in doubt. That was so in the late nineteenth century. It was still so in 1947."[*Byres, 1988: 151*]

"The patwari was enmeshed in the local network of power and subject to the overwhelming authority of the local dominant class". [*Neale, 1962: 315*] Although the post of patwari was usually hereditary, Thorner states that when the post fell vacant landlords had the "powers of nomination" of a successor."[*Thorner, 1956: 47*] This, says Byres "serves to underline the landlord's long-standing

coercive hold over the patwari. The patwari was the landlord's nominee and representative in the village. He would not lightly oppose him or undermine his position."[*Byres, 1988: 152*]

The enforcement of land law depended upon the patwari's records, and those records were widely corrupted.

> "The importance of his work to the village community explains his opportunities, and his reputation, for corrupt practices. He keeps, and ought to keep up-to-date, the khasra or field book, the village map with its numnbered plots and its corresponding entries in the register, and the namabandi or rent-roll . . . upon the simple issue as to which of two persons has cultivated a plot, or is in actual possession of it, it is quite common to find a number of witnesses on either side flatly contradicting one another, each backed by strong corroborative detail in support of his assertion. In such a contest the patwari's official entry, supported by his sworn testimony, and his normal means of information ought to be conclusive; and the side which he supports has prima facie a strong card to play. His own position is certainly a strong one."[*Neale, 1962: 202, quoting Walsh*]

Within the context of the Zamindari Abolition Act "the central issue was precisely which portions of a zamindar's holdings were to be classified as sir and khudkasht" [*Thorner, 1956: 48*] and by implication would be converted to bhumidhari under the terms of the Act. "During the war and in the seven years following, owners could earn more by managing their holdings than by letting them, and tenants and sharecroppers were evicted and then hired as labourers. Towards the end of this period "the preliminaries to, and the stately legislative progress of, zamindari abolition gave to the patwaris of the UP and opportunity such as had never before occurred to them even in their fondest dreams. They did not fail to avail themselves of it." The patwaris falsified accounts to such an extent that "one cannot go to a UP village today without hearing from ryots about land over which they should have sirdari rights but which went to the former landlord as bhumidhari land, courtesy of the patwari."[*Thorner, 1956: 48-49*] According to Byres "it was the poor peasants who were

the major losers in this respect". [*Byres, 1988: 143*] We would also surmise that it was in the Eastern Region where landlords wielded their greatest power, and where sharecropping and subtenancy were most in evidence, that the patwari system was open to the greatest abuse at the time of Zamindari Abolition.

The Act was very ambiguous in respect of its treatment of sub-tenants, for despite the fact that it said that they were eligible for sirdari rights it also left a considerable margin of doubt as to whether in view of their "unstable right upon their holding" and the right of the zamindar to resume cultivation of land classified as sir or khudkasht, they should perhaps only be granted *asami* rights. Clearly there was considerable flexibility and room for manoeuvre within the letter of the Act in this area.

In view of this and the fact that the landholding limitation was originally set at 40 acres per individual, it is not surprising that landlord families,by skilful manipulation of such loopholes, especially in the Eastern Region where sub-tenancy was more prevalent and ejection of tenants therefore easier, were still able to retain holdings of between 150 and 200 acres after Zamindari Abolition.

Table 4
Percentage Distribution of Sample Households and of the Area of their Cultivated Holdings before and after Zamindari Abolition by Size of Holding

	Western Region				Eastern Region			
	Households		Area		Households		Area	
Size Group	Before	After	Before	After	Before	After	Before	After
	%	%	%	%	%	%	%	%
Below 1 acre	3,70	3,58	0,21	0,22	10,50	13,11	0,94	1,44
1-3 acres	15,83	15,63	3,31	3,42	36,50	36,89	8,72	11,98
3-5 acres	19,87	23,78	8,87	11,27	17,50	15,05	8,84	9,70
5-10 "	33,33	32,57	27,09	27,92	17,50	19,42	16,31	23,08
10-15 "	14,14	12,05	18,80	16,91	9,50	8,73	14,82	18,55
15-20 "	3,70	3,91	7,39	8,48	2,08	2,43	4,63	6,94
20-30 "	5,72	5,54	15,82	16,37	1,50	1,94	4,21	8,45
30-40 "	2,36	1,96	9,89	8,06	2,50	0,49	10,76	2,60
Above 40 acres	1,35	0,98	9,09	7,35	2,50	1,94	30,77	17,26
Total	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Source: *Singh & Misra, Table 24: 239*

It is apparent from the above table that the only significant difference in the distribution of land in either region after Zamindari Abolition was a reduction in the percentage of households and land concentration in the above 30 acre size classes. Because of the initial larger proportion of land falling within these size ranges in the Eastern Region the reduction was much more marked in that region than in the Western Region. However, this still left nearly 20% of the land in the hands of less than 2.5% of the cultivating population in the Eastern Region and 15% of the land in the hands of just under 3% of the landholders in the West. This was possible because lenient application of the law, particularly in the case of politically influential landholders allowed division of large holdings among family members. [*Metcalf, 1967*]

Paul Brass maintains that the Zamindari Abolition Act did not dispossess the former zamindars and taluqdars. It removed them as tax farmers and displaced them from control over the land they did not own, but left them in possession of lands traditionally presumed to be

under their personal cultivation or supervision - their sir or khudkasht. In general, the Congress land reforms were designed principally to eliminate the old system of tax farming, which was accomplished effectively, and to limit the size of the largest farms which was also achieved for the most part. It left most landholders in possession of lands they and their families had always cultivated and involved very little redistribution of land. [*Brass, 1980: 397*]

Only the bigger zamindars and sub-tenants or tenants-at-will suffered major losses because of zamindari abolition. Both of these groups were concentrated in the Eastern Region. There is some indirect evidence to indicate that considerable displacement of small-holders into the landless labourer class may have resulted from the operation of the Zamindari Act, especially in the Eastern Region. The Censuses show very large increases in the proportion of the working population recorded as agricultural labourers from 1951 to 1961 and to 1971. [*Brass, 1980: 407-408*]

Table 5
Agricultural Labour Population - 1951, 1961, 171

	1951 %	1961 %	1971 %
Uttar Pradesh	5.8	10.5	19.7
Eastern Districts	8.1	17.8	30.6
Western Districts			
Rohilkhand	3.2	6.9	12.2
Upper Doab	7.6	7.4	16.7

Source: *Census of UP, 1951, 1961, 1971, quoted by Brass, Table 3: 1980*

This may be due to changes in census definitions, but even if the figures need to be reduced by half due to error, the alteration is still exceptionally large in the Eastern districts. There is no way of establishing for certain that Zamindari Abolition was all or partially responsible. However, the woolly definition of "personal cultivation", the known large-scale ejectment of tenants under the

guise of "voluntary surrender" of tenancy, and the fact that crop-sharers had no security of tenure in the State, does point towards some such partial explanation. [*Appu, 1975*]

There seems little doubt that the classes who benefitted most from Zamindari Abolition were the cultivating proprietors and previous permanent tenants of Western UP. It reinforced their economic and political dominance in the countryside by removing the vestiges of a semi-feudal strata of non-cultivating tax-farmers and landlords in the region, and provided them with a secure foundation of property rights in the form of land. Residing in an area already well endowed with irrigation, and other infrastructure, this class would be well placed to take advantage of the benefits of the Green Revolution when it arrived. Unencumbered by feudal production relations they would be able to develop the productive potential of their holdings to the limit.

By contrast, in the Eastern Region, the economic and political power of the largest landlords was curbed to some extent, but a large class of substantial landholders still remained. The multiplicty of sub-tenants in the region gained nothing from the Act, and indeed, could be said to have suffered as a result of evictions. The Act did little to alter the structure of production relationships from the prevailing semi-feudalism which characterised the region.

PART II

LANDHOLDING AND TENANCY IN 1970-71.

Fundamental to our whole thesis is the distribution of land. This is the key resource which determines not only a household's capacity to feed itself and produce a surplus, but because it is the principal means of production in an agrarian society, is also instrumental in determining the production relations and hence the class structure.

The ownership of land gives a person a degree of control over those who work or lease that land. Its initial distribution is therefore a crucial element determining the form of tenancy and labour agreements entered into. To a considerable extent the ownership or non-ownership of land determines the relations of production into which a household enters and hence its position in the class structure.

More than that, if we accept Bhaduri's thesis, the original distribution of land, and hence the productive capacity of individual peasant households, determines whether a household will be caught up in the nexus of usurious production relationships and indebtedness which forms the central core of his theory of the economic structure of backward agriculture, and ultimately as will be outlined below, may lead to the expropriation of that land by the landlord/moneylender class.

In the previous section it was shown how the historical development of land rights and of the landholding structure in Western and Eastern UP was profoundly affected by British land revenue policy. Moreover, the Zamindari Abolition Act of 1951 differed substantially

in its effects on the two regions due to the pre-existing landownership and tenurial structures in Western and Eastern UP. In particular, it has already been shown, how the Zamindari Abolition Act was particularly beneficial for the rich and middle peasants of Western UP, many of whom had previously had the status of occupancy tenants, and whose position it consolidated into full ownership rights to the land.

In the Eastern Region, occupancy tenants were far less numerous, so that the principal change, and benefit came in that it dispossessed the class of large tax farmers who were historically very important in the region. However, it had the negative effect of undermining still further the position of the numerous sub-tenants and tenants-at-will who formed the bulk of the agricultural population of Eastern UP.

Subsequent ceiling legislation (the Imposition of Ceilings Act 1960) which reduced the amount of land that could be owned by one individual to 12½ acres was subject to widespread evasion in both regions, but particularly so in the Eastern Region. It strengthened the position of the rich and middle peasantry of Western UP, but led to widespread eviction of tenants of sir and khudkhasht land in both regions.

The Consolidation of Holdings Act of 1953 was also an important piece of legislation in that it reinforced the effects of the Zamindari Abolition Act. Fragmentation of holdings was rife in UP, as in other parts of India, and affected rich and middle peasants as much as it did the poor peasantry. Figures for Meerut and Muzaffarnagur for 1954-57 show that operational holdings of up to five acres had between three and six fragments per holding, those from five to 15 acres between nine and 15, and those with 15 acres and above, between 16 and 24.[*Byres, 1988: 154*] ". . . there can be little doubt

that fragmentation represented a significant barrier to the efficient working of the land: a barrier felt most keenly by rich peasants, especially those who were proto-capitalists, and who, perfectly accurately saw consolidation as a necessary prerequisite for the most effective use of their land". [*Byres, 1988: 154*] Consolidation of holdings took on added momentum from the mid 1960s, with the introduction of the new technology and in particular mechanisation in the Western Region. [*Byres, 1988: 155*] "It was a step that was taken far more confidently and more pervasively in western UP - where the rich and middle peasantry were an important force." [*Byres, 1988: 154*] By 1971, the date of the bulk of our study, more than half of the cultivated area of the state had been consolidated. [*Brass, 1980: 398*]

1. OWNERSHIP HOLDINGS

This, then is the background against which to view the table below which provides a breakdown of landownership in the two regions, classified by size class for the year 1971-72 based upon the 26th Round of the National Sample Survey carried out between 1st July 1971 and 30th June 1972, in collaboration with the State Statistical Bureau. A sample of 44,534 households was surveyed for the Western Region and 54,930 for the Eastern Region. (These figures are for the combined sample.) Two sub-samples were taken by the survey and the combined sample obtained from the results of the two sub-samples. In all, twice the number of households that appear in the combined sample were surveyed. Owned land was defined to include land owned as well as land over which there was right of permanent heritable possession. A household was defined as a group of persons normally living together and taking food from a common kitchen.

It is generally agreed that the National Sample Survey Organisation provides the most dependable statistics as they are based on independent household surveys and do not rely upon written records. However, even this data must be viewed with a considerable element of scepticism.

Table 1: Distribution of Ownership Holdings in 1971-72

	Western Region				Eastern Region			
Size Class of h'hold ownership	No. of h'holds	Area owned	%age of h'holds	% area owned	No of h'holds	Area owned	%age of h'holds	% area owned
Nil	840	-	1,9		558	-	1,0	-
0,01-0,50	14,874	386	33,4	0,8	10,6033	836	27,3	1,6
0,50-1,00	3,265	889	7,3	1,8	8,842	2,624	16,1	5,2
1,00-1,25	2,829	1,261	6,4	2,5	3,422	1,520	6,2	3,0
1,25-2,50	5,557	4,127	12,5	8,1	10,864	7,936	19,8	15,6
2,50-5,00	8,864	12,974	19,9	25,5	10,260	14,675	18,7	28,8
5,00-7,50	3,876	9,624	8,7	18,9	2,872	6,968	5,2	13,7
7,50-10,00	2,123	7,484	4,8	14,7	1,042	3,583	1,9	7,0
10,00-12,50	940	4,165	2,1	8,2	790	3,551	1,4	7,0
12,50-15,00	459	2,458	1,0	4,8	515	2,819	0,9	5,5
15,00-20,00	503	3,438	1,1	6,8	3,88	2,676	0,7	5,3
20-00-25,00	268	2,366	0,6	4,7	188	1,674	0,3	3,3
25,00-30,00	60	668	0,13	1,31	122	1,304	0,2	2,6
30,00-50,00	76	1,044	0,2	2,0	34	530	0,06	1,04
50,00 & above	-	-	-	-	11	239	0,02	0,74
All Sizes	44,534	50,884	100,0	100,0	54,930	509,35	100,0	100,0

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Table 1*

The table demonstrates a pattern of ownership holding that was not surprising in view of the effects of the Zamindari Abolition Act on the pre-existing patterns of land rights in the two regions. It is striking that a much larger percentage of households and land was concentrated in the size classes between 5 and 12½ acres in the Western Region with 18.6% of households within these limits owning 62% of the land. By contrast, in the Eastern Region 11.2% of households in the same size classes owned 46% of the land. This demonstrates the historical continuity whereby the rich and middle

peasantry of Western UP progressively enhanced their dominance in the countryside, whereas in the Eastern Region this class was historically, and still in 1971, was much less important both numerically and in terms of ownership of land.

In both regions a very large proportion of households owned land of less than 2½ acres. In the Western Region they amounted to 61% of the total, and owned 13.1% of the land area. By far the largest proportion of these households - amounting to more than a third of the entire distribution - owned less than half an acre. Their ownership of land, on the other hand, amounted to just 0.8% of the total. This represented an average ownership holding of an infinitesimal 0.026 acres per household. In itself this was not a viable size. It is possible that these small plots simply represented the sites of homesteads and kitchen gardens, but if that was not solely the case the question then arises of whether these small ownership holdings were supplemented by leased in land to increase them to a viable size, or whether they were plots in the possession of a population who effectively earned their living as agricultural labourers. If the latter was the case then the further question arises of the extent to which the plots were retained, leased out, or under the control of mortgagors or larger landowners as a result of debt? There is also the point, particularly relevant in the Western Region, of the extent to which these very small ownership holdings may represent vestiges of the historical bhaicharya coparcenary cultivating communities wherein landrights were vested in entire communities. As such, each individual household at Zamindari Abolition may well have received ownership rights to a small parcel of land which was further subdivided as a result of population growth and inheritance customs which apportioned land equally between sons. In the event, it is

likely that although the ownership rights were widely spread, the actual cultivation of this land was undertaken in more viably-sized plots by a much smaller number of individual households.

The proportion of households owning less than 2½ acres of land was even higher in the Eastern Region where it represented more than 70% of the total, but at the same time it owned over a quarter of the total land area. This was nearly twice as much land as in the Western Region, despite the fact that the percentage of the population in these size classes was only 9 percentage points greater. As in the Western Region, the largest proportion of these households owned land of less than half an acre (more than 27% of the total) and it is to be expected that as in the Western Region, they would have relied predominantly upon agricultural labour occupations for their livelihood. One fifth of the entire distribution owned land of between 1.25 and 2.5 acres (compared to 12% in the West). The interesting question that arises is the extent to which this substantial class of petty landowning poor peasants relied upon cultivation for its livelihood. The distribution of land by holding, as opposed to ownership will throw more light on this question.

It is in the size class with ownership holdings between 2½ and 5 acres that we see the greatest similarity between the regions with just about one-fifth of households in each region owning about a quarter of the land. (The actual figures were 19.9% of households in the West owning 25.5% of the land, and 18.7% of households in the East owning 28.8% of the land so that the average size of holding for this size class was slightly larger in the Eastern Region.)

At the top end of the distribution there seems to be evidence that owned land was more concentrated in the hands of the largest holders in the Eastern Region than it was in the West. In both

regions 0.3% of households fell in the above 25 acre groups, but in the West they controlled 3.5% of the land, whereas in the East they controlled 4.1%, chiefly because of the existence of some ownership holdings in excess of 50 acres. This is not surprising in view of the historical importance of larger landholders in the region, and the fact that some managed successfully to evade the full extent of land reform and ceiling legislation.

Overall, then, there was a greater range of inequality in ownership holdings in the Eastern Region with a larger percentage of households concentrated at the bottom end and a larger percentage of land at the top end of the distribution. By contrast, more of the distribution, both in terms of households and land owned fell in the mid-ranges in the Western Region.

2. OPERATIONAL HOLDINGS IN WESTERN UP

Although the distribution of ownership holdings gives a good indication of the potential control over resources by different classes in each region, it is to the distribution of operated holdings that we must turn for an assessment of the actual access to this fundamental means of production.

In the table below appears a comparison of the distribution of the percentage of households who owned and operated land in the Western Region.

Table 2: Percentage Distribution of Households and of Area Owned and Operated in the Western Region in 1971-72

Size Class of h'hold ownership or operational holding	% of h'holds owning land	% of land owned	% of h'holds operating land	% of area
Nil	1.9	-	31.6	-
0.01-0.50	33.4	0.8	3.0	0.3
0.05-1.00	7.3	1.8	5.4	1.2
1.00-1.25	6.4	2.5	4.1	1.5
1.25-2.50	12.5	8.1	11.7	6.9
2.50-5.00	19.9	25.0	22.2	26.6
5.00-7.50	8.7	18.9	11.0	21.6
7.50-10.00	4.8	14.7	5.3	14.5
10.00-12.50	2.1	8.2	2.5	9.0
12.50-15.00	1.0	4.8	1.2	5.3
15.00-20.00	1.1	6.8	1.3	6.8
20.00-25.00	0.6	4.7	0.4	3.0
25.00-30.00	0.1	1.3	0.2	1.7
30.00-50.00	0.2	2.0	0.2	1.9
50.00 & above	-	-	-	-
All Sizes	100.0	100.0	100.0	100.0

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Table 1*

By far the most striking difference between the distributions was the apparent transfer of about one third of households from the 0.01-0.50 acre land owning class to the class which operated no land. This upholds our earlier contention that although legal title to partitioned land was retained, actual cultivation may well have been in the hands of only one household, or perhaps a group of relatives, while the others obtained their livelihood from agricultural labour or other occupations.

Of possible relevance here is what Sheila Bhalla describes as the "pipeline theory" of production of land for rent. Using Haryana data, which it must be borne in mind, may or may not be representative of the situation in UP, she shows how the process is initiated when a male member of a cultivating household takes up a non-rural job, part or full-time. He continues to live as a member of the farm

household, whose main income comes from cultivation and agricultural sidelines. At this stage, no land is leased out, and certainly none is sold, but the household has entered the "pipeline": the first step has been taken, which will later on generate a flow of land for lease.

Subsequently, perhaps in the next generation, the non-farm worker (or his descendents) moves out to set up a separate household in the village. This household owns land, but depends mainly on non-farm earnings. The next stage in what may be described as the historically dominant sequence is that the non-farm worker gets a job outside the village altogether. [*Bhalla, 1983: 843*]

Speculatively, some such process as Bhalla describes for Haryana may have been at work in Western UP, however, in view of the very large proportion of the distribution that is involved, it is unlikely that this was the entire explanation, and that the landless figures were swollen by recruits, for one reason or another, from all the classes with ownership holdings of less than 2½ acres, each of which experienced a net loss of land and population between ownership and operational holding categories. By contrast, there was very little redistribution of land between the land-ownership and land-holding categories above this level, which reflected the importance of owner-cultivation in the region.

An alternative explanation to voluntary surrender of land, may be sought in some form of compulsion. Traditional Marxist theory postulates that the process of transition to a capitalist mode of production in agriculture, necessarily entails the eventual polarisation of the class structure between a class of rich peasants and agricultural capitalists who own, or at least control the principal means of production - land - and a class of landless labourers, who obtain their livelihood from wage-labour on the farms

of these capitalsts. The mechanism whereby this transition to agricultural capitalism, and hence the ultimate polarisation of the class structure comes about, is a matter of some controversy, not surprisingly, in view of the wide range of socio-economic structures found in Indian agriculture.

All have in common the notion that the land of the poor peasantry is ultimately expropriated by the rich peasant class. However, this leaves open two important questions, firstly the extent to which the structure of agriculture, in even the most advanced agricultural areas in India can be described as truly "capitalist" in view of the co-existence of a substantial class of poor and middle peasants alongside a class of agricultural labourers and rich peasants, and secondly, what is the precise mechanism whereby the land of the poor peasantry is expropriated by the rich?

On the basis of the structure of landownership and landholding in Western UP, it is quite clear that, although there existed both a substantial class of landless, comprising about 30% of the entire agricultural population, alongside a class of relatively well-endowed landholders who cultivated more than 5 acres of land, who comprised about 20% of the total and whom we shall tentatively refer to as rich peasants, about half of the total agricultural population in the region cultivated holdings of less than five acres. The very existence of this enormous group of poor and middle peasants in Western UP is ample evidence that the ultimate polarisation between a class of landless labourers and rich peasants still has a great distance to go, before the region can be truly described as "capitalist" on the basis of polarisation criteria alone.

However, this may not be that unusual when the experiences of other countries are compared in this respect. Recent work by Marxist

scholars has shown a remarkable persistence of poor and middle peasants, even for example in 19th century England; and in France well into the 20th century. [*Byres, 1986: 24;39*] This raises the whole question of the process whereby capitalism can develop in agriculture without a concomitant polarisation between a class of capitalist farmers on the one hand, and a class of landless wage-labourers on the other in the manner envisaged by Lenin. Byres shows how the path to capitalist agriculture can take many forms, which need not necessarily entail the withering away of the poor and middle peasantry, nor the growth of a large class of landless wage labourers. In America, for instance, a highly efficient capitalist agriculture was built upon the 'family farm' - "or in analytical terms, of simple/petty commodity production, whose defining characteristics are the exclusive production of a single commodity where 'ownership and labour are combined in the household, and production takes place under conditions of competition'.[*Friedmann, 1978: 71*] Also, though for different reasons, Japanese agriculture demonstrated a virtual absence of wage labour during its transition to capitalism.. In that country, capitalism developed from above, via a landlord class which involved itself closely in the agricultural processes undertaken by its tenantry. Also, there was very little differentiation of the peasantry. Even following a land reform in 1945 which curbed the power of the landlords the rich peasantry "did not constitute a significant force". Lenin, says Byres "did not visualise the possibility of such a prolonged, active, and productive role by landlords. . . . Japanese agriculture has certainly been thoroughly penetrated by capitalism, but not by capitalist relations of production."[*Byres, 1986: 49*] These alternative paths to capitalist agriculture - i.e. an agriculture in which reinvestment takes place,

which is highly productive, and which yields a surplus which can be utilised elsewhere in the economy, are of great relevance from the point of view of the situation in Western and Eastern Uttar Pradesh, particularly the latter, where, as we shall show, landlordism is still rife. The question then has to be asked whether for that region in particular, the landlords could ever become the moving force of capitalist development. However, this is dependent upon the extent to which semi-feudal production relationships inhibit such a tendency.

Amit Bhaduri in his theoretical work "The Economic Structure of Backward Agriculture"[*1983*] recognises the co-existence of so-called "capitalist" tendencies in Indian agriculture alongside more traditional forms. To this extent he outlines a theory of land alienation which may well go some way to explaining the perpetuation of a substantial class of poor and middle peasantry in Western UP.

As outlined in chapter two, earlier, his theory rests upon the assumption that the poor peasantry need to take consumption loans in order to maintain their subsistence. The process of land alienation, he says " relates to the dwindling ability of the peasant to repay his growing debt obligations from his current production."[*Bhaduri, 1983: 9*] The poor peasant will retain his land as long as he can. Only when his debt and interest obligations exceed his entire gross income, and he is actually forced to do so, will he part with his land in settlement of the debt. Taken to its logical extreme, the poor peasantry will eventually be expropriated and end up as landless agricultural labourers.

But, this is not the entire story. Bhaduri, in his theoretical analysis shows how it is possible for the landholding distribution to stabilise in much the type of structure found in Western UP, with a substantial class of small and middle peasants, precisely because

there exists a capitalist tendency in agriculture, with its concomitant opportunities for income generation through labour hiring.

The fundamental assumption of the theory is that agricultural productivity, in terms of yield per hectare should be higher on larger farms than on smaller. If this is the case, wages are likely to be high, and indeed may well be in excess of the return to labour obtained from cultivation of their own small plot of land. "Under these circumstances, transfer of land away from the peasantry actually increases their gross income level, and the hold of the debt becomes weaker until a point is reached where the debt trap can be broken, when their level of income exceeds their debt obligation. The process of land alienation must then come to a halt. When transfer of land away from the peasantry can actually make their income level increase through enough earnings from hiring out labour, land expropriation may result in a stable distribution of land ownership where small peasant farms coexist with large farms cultivating through hired labour."[*Bhaduri, 1983: 83*] In a subsequent article Bhaduri, along with some colleagues tested his hypothesis by comparing the ratio of current land ownership to inherited land ownership for a sample of households in Bangladesh during the period 1979/80, and found that "quantititatively a very significant section of households belonging to all land-owning size groups did not at all change their ownership position over time." [*Bhaduri, Rahman, Arn, 1986: 82-83*]

Bhaduri's interpretation of his data and his theory has been open to criticism. Pandian [*1987*] accuses Bhaduri of using "facts isolated from the general politico-economic context of Bangladesh agriculture". He considers that the stability of small landowners in Bangladesh is more a juridical than a real one once one takes account of the real situation with regards to tenancy, wage rates etc, crop

production, etc. Because of extreme "self-exploitation" and under-consumption, share-tenants are not really any better off than if they had sold their labour on the market. Rather than high agricultural wages providing the means whereby small landholders consolidated their position, Pandian says that agricultural wages in Bangladesh declined during 1967-70 inspite of the greater demand for labour as a result of the introduction of the Green Revolution technology. Given the general precariousness of small cultivators he believes that "to argue that their landownership is being stabilised is to take a mistaken position. Once we view instability as a process, it is only too evident that the ownership content of their landed 'properties' is already more or less eliminated while what remains is little more than the shell of the real ownership."[*Pandian, 1987: 536*] Mahmud Khan [*1987*] argues that given the size of the smallholders in Bangladesh with about 59 per cent of households below 0.61 acres, the fact that some smallholders may be able to stabilise their landholding position by means of outside wages, implies "stability for the few households at the expense of the instability of the majority . . . may not explain the generalised stability pattern mentioned."[*Khan, 1987: 539*] He sees an important element in the stability of poor peasant households being the division of households themselves, and their need to obtain land, which is not necessarily via inheritance. [*Khan, 1987: 540*] Feldman and McCarthy [*1987*] consider that far from demonstrating "relative stability" Bhaduri's data indicates that landowners with up to 0.6 acres of land actually registered a decline "indicating a dynamic land market and rather clear processes of polarisation". Like Khan they see the life cycle of the household as crucial to the whole question of stability or otherwise. "One assumes that households with newly inherited land would show unity

between that inherited and that presently owned, while those inheriting land at earlier stages of the household life cycle would be more likely to register some disparity between amounts originally inherited and present holdings. This distinction, in other words, may account for the difference between those households with stable land-holdings and those whose landholdings have declined."[*Feldman, McCarthy, 1987: 544*] They also make the point that "by ignoring the time factor in the construction of a land stability index" Bhaduri makes the " working assumption that polarisation can accurately be measured by changes within a single generation. It would seem more accurate to assume that processes of polarisation occur across generations and in response to structural constraints in the economy."[*Feldman, McCarthy, 1987: 544*] These authors also see a problem arising when trying to define a small farm in that there is not a clear distinction between homestead holdings and cultivable land. There may be many small landholdings, but they are not all necessarily cultivated holdings, and therefore it may not be accurate to view them all as small "farms". "While the proposition that smallholders persist is unquestioned, the identification of the units on which they produce as small farms appears unwarranted."[*Feldman, McCarthy, 1987: 547*]

We have covered this debate on Bhaduri's formulation in considerable detail, because many of the points raised have relevance not only to Bangladesh but in particular to the situation in Eastern UP, which in terms of the predominance of small landholdings and the prevalence of semi-feudal production relationships is much closer to the type of situation found in Bangladesh than is the case for Western UP. Feldman and McCarthy's point concerning the fact that there is no necessary congruence between small size of holding and small farm is

one which needs to be borne in mind when examining data for both regions of UP. Despite the criticisms and the fact that it is of course, highly speculative, Bhaduri's thesis is likely to be more applicable to the situation in Western UP, where, as we shall show in Chapter 6, the Green Revolution made an early start in the mid 1960s.

There is some indirect evidence for Bhaduri's thesis from a study carried out in Haryana, which is socio-economically very similar to Western UP, and a state where the Green Revolution started about the same time, and can be epected to have had a similar impact. During the decade 1962-1972 Sheila Bhalla [*1983*] found that the incidence of households selling off land because of debt, and land changing hands because of mortgage foreclosure, was negligible. She says that both sample data and informed rural opinion agree on this point. It is conceded that distress sale of land may have been a significant factor two decades or more ago, but that this was no longer so. The decline in distress sales is not because debt levels fell. On the contrary, it is because incomes and the non-land assets base of farm households both rose sufficiently to enable households to carry a higher debt level without resorting to the sale of land. [*Bhalla, 1983: 836*]

2. OPERATIONAL HOLDINGS IN THE EASTERN REGION

The table below presents a comparison of the distribution of owned and operational landholdings in the Eastern Region.

Table 3
Percentage Distribution of Households and of Area Owned and Operated in the Eastern Region in 1971-72

Size Class of h'hold ownership or operational holding	% of h'holds owning land	% of land owned	% of h'holds operating land	% of area operated
Nil	1.0	-	13.8	-
0.01-0.50	27.3	1.6	9.9	1.1
0.50-1.00	16.1	5.2	14.0	4.2
1.00-1.25	6.2	3.0	6.7	3.0
1.25-2.50	19.8	15.6	23.2	17.2
2.50-5.00	18.7	28.8	20.6	29.3
5.00-7.50	5.2	13.7	6.3	15.0
7.50-10.00	1.9	7.0	1.9	6.7
10.00-12.50	1.4	7.0	1.5	6.6
12.50-15.00	0.9	5.5	0.9	5.1
14.00-20.00	0.7	5.3	0.7	4.9
20.00-25.00	0.3	3.3	0.4	3.4
25.00-30.00	0.2	2.6	0.2	2.1
30.00-50.00	0.06	1.04	0.06	0.2
50 and above	0.02	0.5	0.02	0.4
All sizes	100.0	100.0	100.0	100.0

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Tables 1 and 7*

Looking at the lower end of the distribution there are several significant points to be made. The first is the reduction in the proportion of households in the 0.01-0.50 acre ownership class from 27.3% of owner households to 9.9% of operational holding households, whereas the proportion of land fell much less - from 1.6% of land owned to 1.1% of land operated. There are several possible explanations for this. Firstly, there is the point, already mentioned with regard to Western UP, that the ownership figures may well be something of a statistical chimera. It would not be surprising to find that in view of inheritance customs whereby land is

partitioned between sons, with the resulting reduction in holding size, that while all the brothers have legal title to some of the land only one actually cultivates, while the others retain a claim to some of the produce and are at the same time left free to maximise the family income via agricultural labour and other occupations. There is also the point that some of this land may be homestead and kitchen garden sites rather than cultivated holdings.

There is an increase in the proportion of landless households - from 1% owning no land to 13.8% operating no land. However, this latter figure is much smaller than the 31.6% of households classified as landless in the Western Region. By far the bulk of the distribution in Eastern UP fell in the under 2.5 acre size classes, representing nearly 54% of all households operating land. Up to one acre there was a net decline between ownership and operational classifications in both the proportion of households and the percentage of area involved. But between 1 and 2½ acres there was a net addition.

Was the one acre point some sort of watershed in the region? Was it for instance the minimum level of viability? There are several ways this could be approached. Firstly, there is the simple point that below this point it may not be possible for a cultivator to produce enough to feed himself and his family, and secondly there is the more sophisticated point, based upon Bhaduri's thesis, that this may be the point below which the ultimate expropriation of land becomes inevitable via the debt mechanism.

Bhaduri's original hypothesis concerned the perpetuation of semi-feudal production relationships. Much the type of production relationships we have already hypothesized to be predominant in the agriculture of Eastern UP.

The same mechanism applies as already outlined above for Western UP, but with one crucial difference. For the West we hypothesised that productivity would be higher on larger farms, and hence according to Bhaduri's theory the possibility of high wages might stabilise the landholding structure to include a significant minority of small peasant holdings as was indeed the case in Western UP. In the East, it was suggested that the much-quoted inverse relationship between size of holding and output per acre still holds. This will be examined in detail in Chapter 6). Given that this was the case, then wages will inevitably be lower than the return that the poor peasant can obtain from cultivating his own holding. Unlike his cohort in the West, he can never break the debt trap by taking wage-labour on the larger farms in the region. Given the mechanism outlined in Chapter 2, debt must therefore increase relative to gross income. Bhaduri hypothesised that such a situation may lead eventually to the appropriation of the peasant's land by the moneylender. However, he conceded that this was on condition that "debt-rolling", i.e. taking recourse to more debt to settle past debt was not resorted to. If the debt was rolled over, then inevitably the poor peasant becomes even more tied to the moneylender, with the substitution of highly oppressive production relationships, such as labour-service and bondage a distinct possibility.

Between 2½ and 7½ acres there was a small increase in both the proportion of households and of land operated compared to the distribution for ownership holdings, from nearly 24% to nearly 27% of households, and from 42.5% of total land area to 44.3%

Above 7½ acres there was no significant difference between the proportion of households owning and operating land - the latter representing an increase of just 0.1% points. However, the reduction

in the proportion of land operated was more significant, from 32.2% of land owned to 29.5% of land operated.

4. OPERATIONAL HOLDINGS IN WESTERN AND EASTERN UP COMPARED

A direct comparison of the operational holdings distributions between the regions was made in the table below:

Table 4
Percentage Distribution of Households and of Area Operated in the Western and Eastern UP

	Western Region		Eastern Region	
Size Class of h'hold operational holding	% of h'holds operating land	% of land	% of h'holds operating land	% of area operated
Nil	31.6	-	13.8	-
0.01-0.50	3.0	0.3	9.9	1.1
0.50-1.00	5.4	1.2	14.0	4.2
1.00-1.25	4.1	1.5	6.7	3.0
1.25-2.50	11.7	6.9	23.2	17.2
2.50-5.00	22.2	26.6	20.6	29.3
5.00-7.50	11.0	21.6	6.3	15.0
7.50-10.00	5.3	14.5	1.9	6.7
10.00-12.50	2.5	9.0	1.5	6.6
12.50-15.00	1.2	5.3	0.9	5.1
15.00-20.00	1.3	6.8	0.7	4.9
20.00-25.00	0.4	3.0	0.4	3.4
25.00-30.00	0.2	1.7	0.2	2.1
30.00-50.00	0.2	1.9	0.06	0.2
50.00 & above	-	-	0.02	0.4
All Sizes	100.0	100.0	100.0	100.0

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Tables* land 7

By far the most striking difference between the two distributions was the much larger percentage of landless households in Western UP, accounting for nearly 32% of the entire distribution, compared to a landless population accounting for 13.9% of the total in the Eastern Region. This was offset in the Eastern Region by the larger proportion of households with holdings of less than 2½ acres - nearly 54% of the entire distribution, compared to just over 24% in the

Western Region. This is significant, and raises several important questions within the context of the mode of production and poverty generation in the two regions.

The high percentage of landless households in the Western Region, implies a large proportion of households who obtained the bulk of their incomes from agricultural labour occupations, and concomitantly a class of employers. But, did the smaller percentage of absolutely landless in the Eastern region imply that agricultural labour was less prevalent in that region? The available evidence points to the exact opposite conclusion. According to the 1971 Census the proportion of agricultural labourers in the working population totalled 20% in the Western Region and 33% in the Eastern Region! [*Gov't of India, 1971: 4-5*] There are many qualifications concerning these figures which depend on the the way an agricultural labourer was defined, and which will be enumerated in detail later. However, the important point at the moment is that a large proportion of the cultivators with holdings below 2½ acres in the Eastern Region must have supplemented their incomes from their holdings with wage-earnings.

Inevitably, this implies a class of employers in the Eastern Region. But crucially within the context of this work is the extent to which these employers differed in terms of their class characteristics between the regions.

It is our contention, already stated in Chapter 2, that in the Western Region the class of employers was far more likely to be of a rich peasant, emergent "capitalist" class, whereas in the Eastern Region a set of predominently semi-feudal production relationships was more the norm.

The greatest similarity between the distributions of the two

regions comes in the 2.5-5.00 acre size class which in both instances accounted for about a fifth of the entire distribution. At the same time, this size class exhibited a great similarity between the landownership and landholding categories. This raises the question of whether this was a stable but theoretically transitional class of middle peasantry, who were just making a livelihood from their holdings, and who bridged the gap between a class of rich peasants who cultivated larger surplus-producing holdings, and poor and marginal peasants with holdings below 2.5 acres who were largely unable to obtain a subsistence from their holdings? Further evidence will be examined in subsequent chapters.

In the Western Region nearly 19% of households cultivated between 5 and 12.5 acres of land compared to just under 10% of households in Eastern UP. Two-and-a-half percent of households with holdings between 12.5 and 20 acres cultivated just over 12% of the land in Western UP, compared to 1.6% of households who cultivated 10% of the land in the Eastern Region. These mid-size classes were therefore of considerably greater significance in the Western Region. Above 20 acres 0.8% of households cultivated 6.6% of the land in the Western Region compared to 0.68% of households who cultivated 6.1% of the land in the Eastern Region indicating a slightly greater concentration of land at the top of the distribution in the Eastern Region.

5. LEASE MARKETS IN WESTERN UP

Of all the data on land by far the most unreliable is that concerned with lease markets. On the abolition of Zamindari in UP, landowners were not allowed to resume any tenanted land, and the then existing tenants were given permanent and heritable rights to land they had been cultivating. However, because sharecroppers were not

classified as tenants, landlords could resume all land cultivated in this way. With the legal "abolition" of tenancy many hitherto recorded transactions went underground and reverted to simple oral agreements - leaving the tenant without security of tenure and subject to summary ejectment. Legislative and administrative efforts made in the years since Independence to extend security of tenure to tenants were frustrated to a large extent by "voluntary surrenders" by tenants. Most "voluntary surrenders", however, are anything but voluntary. There are no provisions for regulating surrenders in UP despite the Third Plan recommendations that UP land records be kept up-to-date through small annual revisions. In many cases tenants do not insist on their names being recorded because of the danger of being evicted by angry landlords. [*Appu, 1975:1353*]

Theoretically the differences between ownership and landholding figures should be accounted for by leasing in and leasing out. However, in view of the comments above it is not at all surprising that tenancy figures simply do not "add up". The unreliability of the data was well illustrated by the case of Bihar which, according to the Agricultural Census of 1971, had the largest area of any state under owner cultivation - 99.6%. According to the same census, tenancies constituted only 0.22% of the number of operational holdings and 0.17% of cultivated area. This is clearly absurd when compared to the 1961 Census of India in which the incidence of tenancy for Bihar was 36.65%. According to P.S. Appu the results of fieldwork in the state showed that even today there are districts of Bihar where more than 30% of the cultivated area is under sharecropping. [*Appu, 1975, 1355*] When the 1971 Agricultural Census of UP tells us that only 1.1% of the cultivated area was under tenancy in the Western Region and only 3.2% in the Eastern Region, we should therefore view

these figures with a similar degree of scepticism. [*Board of Revenue, 1974: 132, 141*]

Given the unreliability of the recorded data it is advisable to use survey data. It is generally agreed that the National Sample Survey Organisation provides the most dependable statistics as they are based on independent household surveys and do not rely upon written records. However, studies undertaken by the AERC at Delhi in villages of Punjab, Haryana and Western UP indicate that even NSS figures for these states may well underestimate tenancy by as much as 10%. [*Laxminaryan & Tyagi, 1977: 880.*] In looking at the NSS Survey data on tenancy in UP we must therefore constantly bear in mind that we are probably dealing with underestimates.

Three sets of NSS figures are available - those for leasing out, those for leasing in, and a set of leasing in figures which exclude the nil operating group and make estimates of the extent of the operated area leased in. Leasing in figures are probably more accurate than leasing out figures due to a greater likelihood of respondents being prepared to admit to leasing-in land in the hope of establishing some title to it, whereas there may be a fear that admission of illegal leasing out of land may result in its confiscation. Certainly the overall totals would seem to indicate that this was the case, for while in the Western Region only 5.2% of the owned area was reported to be leased <u>out</u>, 13.9% of the same area was reported to be leased <u>in</u> as we see from the table below.

Table 5
Percentage Leasing-in and leasing-out via Sharecropping and under any terms in 1971-72 in the Western Region

Size Class of h'hold ownership holding	Western Region: % of h'holds leasing in for share of produce	% of h'holds leasing in under any terms	% of owned area leased in for share of produce	% of owned area leased in under any terms	% of h'holds leasing out for share of produce	% of h'holds leasing out under any terms	% of owned area leased out for share of produce	% of owned area leased out under any terms
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Nil	-	35,5	-	159*	1,3	2,3	5,7	12,4
0,01-0,50	3,4	0,6	276,1	633,9	8,6	16,0	9,2	16,7
0,50-1,00	8,6	20,6	48,8	109,2	7,0	11,7	5,4	12,3
1,00-1,25	21,1	40,6	45,0	71,2	6,5	8,8	4,5	7,4
1,25-2,50	7,1	15,3	8,3	21,1	2,7	3,6	2,1	3,3
2,50-5,00	9,1	14,4	6,2	9,5	3,7	5,1	1,5	1,8
5,00-7,50	3,8	8,5	2,2	6,3	5,2	6,5	4,2	4,7
7,50-10,00	4,4	4,5	0,9	1,2	4,6	9,1	2,7	4,4
10,00-12,50	1,7	1,7	1,3	1,3	3,5	11,8	1,3	5,2
15 00-20,00	-	-	-	-	-	2,8		0,5
20,00-25,00	-	-	-	-	-	24,6	-	19,9
25,00-30,00	-	-	-	-	-	50,0	-	22,1
30,00-50,00	-	-	-	-	-	18,4	-	9,1
Above 50,00	-	-	-	-	-	-	-	-
All Sizes	6,4	13,5	70,5	13,9	3,6	6,0	2,4	5,2

Source: *NSS, 26th Round 1971-72, Tables on Landholding, U.P. Tables 3 and 4*

Taking leasing-in first, then if the data is to be believed leasing-in of land was confined to households with holdings of up to 12½ acres. The overall trend is towards a decline in the proportion of households involved as size of holding increases, so that for the 10.00-12.50 acre size class only 1.7% of households admitted to leasing in land, and in fact took only a very small average proportion of their land on lease, representing just 1.3% of their owned area. By contrast 35.5% of the sample households who owned no land were involved in leasing in, although the total amount of land involved was only 159 acres, so the actual amount per household must have been infinitesimal. Overall, the classes with ownership holdings of up to 1.25 acres were most involved in taking land on lease, as was to be expected given their small size. (How far it should actually be

believed that just 0.6% of households in the 0.01-0.50 acre size class leased-in land can only be a matter of conjecture. . Certainly, the fact that there was an enormous decline in both the proportion of households in this size class between the ownership and operational classifications does give the figure some credence.) For households up to 1.25 acres by far the bulk of their land was leased-in. The majority of land leased in for all size classes was taken on a share-crop basis, irrespective of size of holding.

Turning to the figures for leasing out it emerges that in the Western Region the bulk of leasing out both in terms of the percentage of households and the percentage of land involved averaged out per household, was concentrated at the top and bottom ends of the distribution. The three smallest size classes up to half an acre, half to one acre, and one to one and a quarter acres, leased out respectively 12.4%, 16.7% and 12.4% of their owned land. At the top end of the distribution the size classes with holdings between 20-25 acres, 25-30 acres and 30-50 acres leased out respectively 19.9%, 22% and 9.1% of their owned land. The fact of leasing out on the part of large landowners is easily explained, both in terms of evading ceiling legislation and in order to obtain the maximum income from land which was in excess of what they are able to cultivate effectively with family labour. Indeed, it may well be that it was more cost-effective for this class to lease out land on a crop-share basis rather than hiring in agricultural workers, especially where labour was scarce and expensive. The phenomenon of extensive leasing out by small-owners is less easily accounted for, although the explanation advanced by M.V. Nadkarni [*1976*] may well be of relevance here. It is his view that with the advent of land reform and ceiling legislation it became more risky to lease out land but that

significantly there was no risk for larger farmers who leased in land. On the contrary, it holds the promise of regularising their operational control by acquiring formal ownership when convenient. The process avoided the conspicuousness of an immediate land transfer and provided justification (to acquire formal ownership when necessary) of having exercised operational control for some years.

In fact, a change of nominal ownership was not even necessary as long as the "landlord" was kept contented with whatever little share of the crop or fixed rent he got out of his land. The law being on the side of the tenants the bargaining power of such tenants who were already strong by reason of belonging to the dominant class in rural society was strengthened further. With superior bargaining power, if the "tenant" could get as much as he wanted out of leased-in land he need not bother about its legal ownership. Besides, legal ownership might be bothersome under the ceiling legislation. The tenant could also get transferred to himself whatever special assistance was obtainable to small and marginal farmers under schemes like SFDA and MFAL. [*Nadkarni, 1976:137*] Even where the cultivator had to depend on hired labour he could enter into arrangements with small owners, from whom he leased-in land, to work on their own farms. According to Nadkarni, a trend was appearing wherein crop output was shared on a 50:50 basis between the "tenant" and the "owner", the former providing working capital including needed inputs, and the latter providing his land and free labour.

One way of looking at this is that this type of arrangement could well prove very attractive to the smallholder in view of the initial non-viability of the holding, lack of access to capital and his greater sensitivity to the risk of crop failure. A small owner may hold on to his land as long as he can, but an opportunity to lease

it out in return for inputs and some crop-share or fixed rent could be a tempting proposition. In addition, he no longer risked losing his working capital in the event of crop failure. Furthermore, such an arrangement also freed him to take up wage labour wherever and whenever it was available. [*Nadkarni: 1976: 139*]

However, such a view sees the small-holder as making a rational choice to enter into such an arrangements. There is also the possibility that the smallholder has no choice, particularly if, as Bhaduri hypothesises, and Krishna Bharadwaj [*1985*] maintains, there exists in even the most advanced areas of Indian agriculture, a set of interlinked markets for land, labour, produce and usury, which lead to the poor peasant eventually having his land expropriated via a mechanism of debt and usury, as outlined earlier. This will be dealt with fully in Chapter 8.

The leasing-in and leasing-out figures for the Western Region, in conjunction show that the net gain in land area via tenancy of whatever form was greatest in those intermediate-size landowning classes between 2½ and 7½ acres.

This is thrown into relief by the data in the table below, from which we can calculate that a total of 1,888,500 hectares was taken on lease by the 2½-12 acre operating groups. This accounted for a third of the total area operated and equalled nearly 94% of total area leased in. This compares with the fact that it was calculated that only 81,300 hectares representing just 4% of the total area operated was accounted for by leasing in by the under 2½ acre size class, despite the greater overall involvement of households in those size classes. The average absolute amount of land taken on lease by these smallholders was therefore much smaller than that of intermediate-sized cultivators.

Table 6
Percentage of Holdings Reporting Owned Area and Those Reporting Leased-in Area, and Percentage of Operated Area Owned and Leased in on Share-Crop and under any terms in the Western Region in 1971-72

Size Class of h'hold operational holding	Estimated No. holdings (00)	Holdings with owned area (%)	% of Holdings Reporting Leased-in Area for share of produce	on any terms	Estimated Area operated (oo hecs) (total	% of area owned	% of Area Leased-in for share of produce	total area leased-in
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0,01-0,50	1,314	100,0	-	11,4	166	92,9	-	7,1
0,50-1,00	2,555	92,3	15,6	20,8	692	80,1	13,5	19,9
1,00-1,25	1,847	99,3	2,4	12,3	841	87,1	3,3	12,9
1,25-2,50	5,195	98,7	11,7	20,7	3,832	85,5	8,5	14,5
2,50-5,00	9,705	97,4	18,7	27,6	14,879	82,8	11,2	17,2
5,00-7,50	4,823	90,4	19,8	27,8	12,979	87,34	7,4	12,7
7,50-10,00	2,202	99,1	10,3	12,8	8,181	88,3	6,8	11,8
10,00-12,50	1,049	98,5	8,7	18,3	4,886	84,6	5,5	15,4
12,50-15,00	524	100,0	-	3,2	2,938	97,1	-	2,9
15,00-20,00	531	98,9	-	4,3	3,824	94,4	-	5,6
20,00-25,00	188	100,0	-	-	1,654	100,0	-	-
25,00-30,00	84	100,0	20,2	20,2	934	78,8	21,2	21,2
30,00-50,00	76	100,0	-	-	1,043	100,0	-	-
50,00 & above	-	-	-	-	-	-	-	-
All Sizes	30,093	97,9	13,8	22,6	55,949	87,3	7,2	12,7

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Table 4*

Whether a lessor comes from the class of small-landowners or possesses a more substantial ownership holding makes a crucial difference to the nature of the production relationship between him and the tenant. The class position of the tenant in relation to that of the lessor is equally relevant. It is within this context that we should view the high incidence of sharecropping among all the cultivators who take land on lease in the region.

It is clear from the table above, that for most holdings sharecropping was the most important form of tenancy agreement. However, the conditions of the sharecropping contract were likely to be dependent upon the relative class position, i.e. in this context the acreage owned, of the landlord and tenant. In her study of Haryana, Sheila Bhalla [*1983*] considered that permanent labourers'

jobs and renting in of land may be viewed from the labourers' standpoint as alternatives. This was the case not only for members of landless households, but also for those from small-acreage landowning households. The latter hired out their members on a surprisingly large scale in the technologically advanced regions. Thus, mixed tenure status for small landowners, as well as pure tenant status for landless labour households may be to a large extent substitutes for hiring out family members under permanent labour contracts. [*Bhalla, 1983: 85*] This will be dealt with fully in Chapter 8.

There are many variations of the extent and pattern of cost-sharing. In the traditional arrangements the tenant was supposed to provide his own labour and his own bullock and plough; the landlord was expected to pay the land taxes as well as irrigation taxes when they existed. But with the introduction of new inputs, new crops and new irrigation devices, new cost-sharing devices have developed. Bardhan and Rudra[*1980*] maintained that while in the overwhelming number of cases in Bihar, Orissa and UP tenants bore all the costs of seed and manure, 50:50 cost-sharing with the landlord is much more common in the case of chemical fertilizers - a new input. [*Bardhan & Rudra, 1980: 289*] The tenancy contract was predominantly a short-term contract holding good for a year or less than a year (say, for a crop season). There were indications that the practice of lease for a specific crop and for a specific season was on the increase. In advanced areas there was a tendency for the landlord not simply to confine himself to supervision of harvesting alone, but to participate in making decisions singly or jointly with the tenant about such matters as what crops to grow and what inputs to use. [*Bardhan & Rudra, 1980: 290*]

The important point to be made is that share-cropping in the Western Region was not just confined to the landless and to small cultivators. As indicated in Table 6 it was also very significant for the important class of medium-sized cultivators with holdings between 5 and 12½ acres. However, depending upon from whom they leased their land, these cultivators were likely to enjoy more favourable tenancy contracts than was the case for small and marginal landowners.

6. LEASE MARKETS IN EASTERN UP

In Chapter two, we dealt in depth with the theoretical concept of a semi-feudal mode-of-production. In this, it was shown how Amit Bhaduri laid great stress upon the mechanism of usury as a mode of surplus extraction. However, some writers; Chandra [*1974*] for instance, have given equal or greater weight to tenancy, particularly when it involves shareholding contracts, as a means not only of surplus extraction, but of subordination of the poor peasantry. Other writers, notably Bharadwaj [*1985*], and Bardhan and Rudra [*1980*] have stressed the importance of interlinked markets for land, labour,credit and output as key elements in the semi-feudal mode of production. "The power of the dominant party to exploit in interlinked markets was much more than in markets taken separately."[*Bharadwaj, 1985: 13*]

Whoever we follow, theoretically, the nature and extent of tenancy is a crucial element determining the extent and mode of exploitation of the poor peasantry via a system of unequal exchange. For example, says Krishna Bharadwaj "the land-labour interlinkage prevails quite widely, wherein the landlord stipulates, as part of the

tenancy contract, attachment of labour services which are underpaid or unpaid."[*Bharadwaj, 1985: 12*]

We have already seen in the section on landownership and landholding the extent to which households in Eastern UP were concentrated at the bottom end of the distribution, with 70.4% of the total (including 1.0% with no land) who owned 2.5 acres of land or less, and 67.4% (of whom 13.8% were landless) with operational holdings up to this limit. In both instances they accounted for slightly more than a quarter of the total land area.

Involvement in the lease market by these households was very extensive, as we see from the table below.

Table 7
Percentage Leasing-in and leasing-out via Sharecropping and under any terms in 1971-72 in the Eastern Region

	Eastern Region							
Size Class of h'hold ownership holding	% of h'holds leasing in		% of owned area leased in		% of h'holds leasing out		% of owned area leased out	
	for share of produce	under any terms	for share of produce	under any terms	for share of produce	under any terms	for share of produce	under any terms
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Nil	-	876,6	-	86*	1,6	4,6	3,1	6,4
0,01-0,50	14,3	35,8	104,2	249,4	3,9	10,5	2,9	6,0
1,00-1,25	16,4	34,2	25,9	45,3	1,5	7,8	1,4	3,4
1,25-2,50	12,2	23,6	99,6	18,5	3,5	12,2	2,2	5,0
2,50-5,00	4,8	15,3	1,1	4,1	3,1	15,9	2,1	4,3
5,00-7,50	3,8	16,9	0,7	2,7	1,7	18,1	0,7	3,3
7,50-10,00	1,1	5,4	0,1	1,0	-	13,4	-	3,3
10,00-12,50	1,4	9,9	0,2	2,3	1,4	21,1	0,7	2,6
25,50-15,00	-	12,6	-	0,5	2,1	23,7	0,1	2,2
15,00-20,00	5,7	14,2	0,7	2,2	11,3	40,0	0,6	3,3
20,00-25,00	5,9	23,4	0,8	1,2	-	23,4	-	0,7
25,00-30,00	-	9,0	-	0,4	9,0	54,9	0,4	7,0
30,00-50,00	-	32,4	-	1,3	-	67,6	-	7,5
Above 50,00	-	-	-	-	-	100,0	-	5,4
All Sizes	11,2	27,1	5,2	11,2	2,7	11,2	1,4	4,0

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Table 4*

More than twice as many households leased in land in Eastern UP, where they accounted for more than 27% of the total, compared to

Western UP, where only 13.5% of households were involved. However, according to this table, at the same time, a smaller percentage of land area was involved, 11.2% compared to 13.9% in the West. While tenancy was more prevalent in the Eastern Region, it must therefore have involved smaller plots of land. Interestingly, significant proportions of households in all size classes up to 50 acres leased in land in the Eastern Region, whereas according to the leasing-in and leasing-out table, it was largely confined to households with less than 12½ acres in the Western Region. By far the largest proportion of tenants in the Eastern region was found among size classes with holdings of less than 1.25 acres of owned land. More than a third of all households in these groups leased land. If we include the under 2.5 acre size class, 12.2% of whom leased in land, then, bearing in mind that these three groups together comprised more than 68% of the entire agricultural population, the extent of tenancy in the region was clearly very extensive. As in the Western Region, sharecropping was by far the most important single form of tenancy agreement, and was particularly important among households with less than 2½ acres of land.

Despite the overall greater involvement of households of all sizes in the lease market in Eastern UP, the actual proportion of land involved fell off sharply at the 2.5 acre point, whereas in the Western Region significant proportions of land were leased in right up to the 7.5 acre point.

Turning to the leasing-out figures we find that the pattern differed somewhat from that in the Western Region. In particular, there was no big hiatus in the incidence of leasing out in the middle of the distribution. Indeed, the trend in terms of the proportion of households involved rose steadily with size of holding until in the

above 50 acre ownership class it amounted to 100% of households. Taking the proportion of land leased in and leased out, i.e. net leasing in, it is apparent that both in terms of the proportion of households and in the proportion of land involved, tenancy increased towards the bottom of the distribution. The vast majority of tenants in Eastern UP were therefore overwhelmingly of the "traditional variety", i.e. marginal farmers who were trying to maintain their precarious economic balance by supplementing their tiny ownership holdings with parcels of leased-in land.

The fact that the proportion of net land leased out and the number of households involved in leasing out both tended to increase fairly steadily as we go up the distribution towards the larger size classes indicates that landlords too were more likely to be of the "traditional" variety in this region, i.e. to already possess substantial ownership holdings of their own and to engage in tenancy arrangements both as a source of income and as a way of consolidating their power in the countryside.

By far the most common form of tenancy agreement entered into in both regions was some form of sharecropping arrangement, but the figures tell us nothing about the form of such contracts. The range of agreements under this heading can vary significantly as has already been mentioned.

A survey of villages in Eastern India during 1975-6 which included Eastern UP found that "in the overwhelming majority of the villages surveyed sharecropping was the predominant form of tenancy." An important feature of the sharecropping arrangements was that the share proportion clusters around certain simple rational fractions, the most important of which was that of 50:50, although in 16% of the

cases surveyed in Eastern UP the tenant's share was less than 50%. [*Bardhan & Rudra, 1980: 288*]

As in the Western Region there were many variations in the arrangements with regard to cost-sharing. In the traditional arrangement the tenant was supposed to provide his own labour and his own bullock and plough; the landlord was expected to pay the land taxes as well as irrigation taxes when they exised.. But with the introduction of new inputs, new crops and new irrigation devices, new cost-sharing arrangements developed. In the overwhelming majority of cases in UP the tenant bore all the costs of seed and manure, although 50:50 cost-sharing with the landlord was much more common in the case of chemical fertilizers, a new input. [*Bardhan & Rudra, 1980: 288*]

The tenancy contract was predominantly a short-term contract holding good for a year or less than a year (say a crop season). There are indications, say the authors that the practice of lease for a specific crop and for a specific season was on the increase.

A major factor in the tenant's dependence on the landlord works through the former's indebtedness to the latter. The institution of sharecropping tenancy often dovetails in a land-lease contract and a credit contract. Not unexpectedly in a situation of inadequately developed credit markets, while a poor sharecropper may have few assets acceptable as collaterals in the outside credit market, his landlord would accept the tenancy contract itself as collateral. [*Bardhan & Rudra, 1980: 291*] The landlord has the incentive to supply production credit (since he shares in the outcome of its use) and also is in the best position to enforce repayment (of both production and consumption loans) at the time of harvest sharing. Fundamentally it is the resource position, particularly, control over land, which is going to determine the nature of the exchange

involvement and of the terms and conditions of the participating households in such tenancy contracts.

The table below shows the percentage of holdings (excluding the nil operating group) reporting leased-in area, and the percentage of total area operated that was leased in on share-crop and under any terms (including share-crop). This shows in even starker detail how in the Eastern region, the extent to which leasing in, in terms of the proportion of land involved, was heavily concentrated in the 2½ acre and under size classes. Taking the four bottom classes together, nearly 20% of their total area was accounted for by leasing-in of land. Calculating backwards from the percentages, they accounted for a total leased-in area of 278,900 hectares between them which was equal to 5.1% of the total area operated. As the total area leased in amounted to just 10.2% of operated area this means that just about half of all leased in land was concentrated in the hands of those classes with holdings below 2½ acres. This contrasts with the situation in Western UP, where the bulk of leased in land was in the hands of medium-sized landowners.

Table 8

Percentage of Holdings Reporting Owned Area and Those Reporting Leased-in Area, and Percentage of Operated Area Owned and Leased in on Share-Crop and under any terms in the Eastern Region in 1971-72

Size Class of h'hold operational holding	Estimated No. holdings (00)	Holdings with owned area (%)	% of Holdings Reporting Leased-in Area for share of produce	on any terms	Estimated Area operated (oo hecs) (total	% of area owned	% of Area Leased-in for share of produce	total area leased-in
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0,01-0,50	5,542	98,8	5,3	23,7	621	81,3	4,1	18,7
0,50-1,00	7,756	99,5	11,8	34,6	2,303	76,0	6,4	24,0
1,00-1,25	3,730	98,8	16,4	31,4	1,670	83,0	9,4	17,0
1,25-2,50	12,835	99,8	18,6	36,1	9,518	80,7	9,2	19,3
2,50-5,00	11,410	100,0	11,3	27,1	16,249	89,8	4,9	10,1
5,00-7,50	3,291	100,0	8,2	28,7	8,000	90,9	2,6	9,1
7,50-10,0	1,061	100,0	6,8	15,2	3,669	94,2	3,3	5,9
10,00-12,50	802	99,9	2,7	8,3	3,610	98,4	;0,8	1,6
12,50-15,00	526	100,0	-	4,2	2,878	99,2	-	0,8
15,00-20,00	387	100,0	-	11,5	2,682	98,4	-	1,6
20,00-25,00	199	100,0	-	16,8	1,796	99,4	-	0,6
25,00-30,00	34	100,0	-	19,8	1,175	96,7	-	3,4
30,00-50,00	34	98,5	-	32,4	498	98,6	-	1,4
Above 50,00	11	100,0	-	-	226	100,0	-	-
All Sizes	47,695	99,7	12,3	29,8	54,886	88,9	4,3	10,2

Source: *NSS, 26th Round 1971-72, Tables on Landholding, Uttar Pradesh, Table 1*

Overall, in the Eastern Region the pattern of land holding revealed by the data we have examined shows a structure of land relations which fits well into our description of a semi-feudal mode of production. Sixty-seven and a half percent of households, of which 13.8% were landless, cultivated 2½ acres of land or less and accounted for only 25.5% of the entire operational area in 1971-72. Tenancy was widespread and reliance upon it increased as the size of land owned declined. Whereas tenants predominated at the bottom end of the distribution the landlords were concentrated in the classes with more than 7½ acres of land. Those with ownership holdings above 25 acres are the most likely to lease out land, and on the basis of the difference between land owned and land operated, let out the largest proportion, in percentage terms, of their land on some form of

tenancy agreement.

Despite the net gains and losses brought about by tenancy agreements, the landholding structure remained almost as unequal as the land ownership structure, with households concentrated heavily at the bottom and land at the top end of the distribution. Just 1.4% of the households with holdings above 15 acres controlled over 11% of the land, whereas nearly 38% of households with one acre or less controlled just 5.3% of the land.

In the table below we make a direct comparison between the regions of the percentage of households and of operated land leased-in in the two regions.

Table 9
Comparison of the percentage of households and land leased in Western and Eastern UP in 1971-72

Size Class of household operational holding	Western Region		Eastern Region	
	% of h'holds leasing in	%of operated area leased in	% of h'holds leasing in	% of operated area leased in
0,01-0,50	11,4	7,1	23,7	18,7
0,50-1,00	20,8	19,9	34,6	24,0
1,00-1,25	12,3	12,9	31,4	17,0
1,25-2,50	20,7	14,5	36,1	19,3
2,50-5,00	27,6	17,2	27,1	10,1
5,00-7,50	27,8	12,7	28,7	9,1
7,50-10,0	12,8	11,8	15,2	5,9
10,0-12,5	18,3	15,4	8,3	1,6
12,5-15,0	3,2	2,9	4,2	0,8
15,0-20,0	4,3	5,6	11,5	1,6
20,0-25,0	-	-	16,0	0,6
25,0-30,0	20,2	21,2	19,8	3,4
30,0-50,0	-	-	32,4	1,4
50,0 & above	-	-	-	-
All Sizes	22,2	12,7	29,8	10,0

Source: *NSS, 26th Round 1971-72, Tables on Landholding, U.P, Tables 3 and 4*

The table above gives a clear indication of the extent of leasing-in in the two regions. This becomes extremely interesting if taken in conjunction with the distribution of households and operational holdings. It was quite clear that by far the bulk of the leasing in was done by households up to 2½ acres in the Eastern

Region, and that they did in fact take a very large proportion of their land on lease. By contrast both numerically and in terms of the land involved, households up to 12.5 acres were very significant in the leasing-in distribution of the Western Region.

CONCLUSIONS

In this chapter we have looked in detail at the structure of landholding and tenancy in the two regions with a view not only to assessing the relative degrees of inequality in land distribution, but also of identifying the extent to which different classes in each region controlled this most fundamental means of production.

The whole idea of identifying classes in Indian agriculture on the basis of cultivated area has recently come in for criticism from Utsa Patnaik [*1988*] who considers that farm-size groupings are a poor index of social class because they fail to take account of household size, consumption needs, current and past investment, whether the land is irrigated, and its productivity. She rightly points out that "if the productivity of irrigated land is twice that of unirrigated land (a fairly realistic assumption), then a five acre dry farm supporting a five-member household will represent only one-fifth of the per capita endowment that was enjoyed by a two-member household with a five-acre wet holding."[*Patnaik, 1988: 303*] We totally concur in this, and it is for such reasons that we have analysed the land-holding structure as just one factor, albeit the most important one, determining the class structure, and hence the mode of production in each region. Other important factors, in particular, irrigation and the distribution of capital will be considered in detail in Chapter 5, and the extent of hiring-in and hiring out of labour in Chapter 6. This latter, which Patnaik considers of very great significance and

which she has conceptualised as the "labour exploitation criterion" also includes the extent to which labour is exploited via rent. The tenancy data we have considered in this chapter does provide some pointers in this direction.

Class is a most difficult concept to deal with as has already been shown in Chapter 2, and an even more difficult one to operationalise so that it can be empirically tested. Utsa Patnaik's attempt formalises the Marxist concepts of economic exploitation implicit in the relations of production in a way which allows for such testing. On this basis it is possible to produce a class structure for any given society. The problem comes when an attempt is made to compare the class structures of different societies using these or similar criteria, particularly when the societies exhibit significant differences between their modes of production as is the case in Western and Eastern UP in 1970-71. A five acre holding may have a lower capital intensity, a lower use of wage-labour such that it is not a "net exploiter of labour", lower crop yield, and output in Eastern UP than its cohort in the Western Region.

In this chapter we have also shown that the region had radically different landholding structures in 1971-72. In subsequent chapters we shall show that compared to the Western Region, Eastern UP was a capital scarce region, and that land itself was by far the most important productive resource in the region at this date. For this reason it is very difficult to make a direct comparison of the class structures between the two regions.

The main problem with using Patnaik's criterion by which to identify the classes is that it creates very great empirical problems. Adequate and accurate data on labour hiring is scarce, with the Farm Management Studies providing the only really comprehensive set of

statistics by size of holding, and then only on a very selective district basis. Inevitably, therefore, we must do our best with the data that is available, while bearing in mind its limitations. While landholding alone is clearly inadequate, the tenancy data does enhance its usefulness for class analysis and it can at least provide us with pointers towards the type of class structures we are likely to find in Western and Eastern UP.

Of crucial importance in such an exercise is the choice of cut-off points in terms of landholding groups used to differentiate the classes. This is fraught with difficulty and controversy. Indeed, we wish to make it absolutely clear at the outset that in attempting such an exercise we in no way imply a simple correlation between landholding size and class. As we showed in Chapter 2 earlier, class identification implies that its members enter into specific production relationships with other classes, determined largely by whether they have or have not control over the means of production. The size of landholding gives us no more than an a priori pointer towards the class a particular group might inhabit and needs to be taken in conjunction with other evidence. Accepting that, we then have the problem that land is a far from homogeneous factor of production, varying widely in its productivity. This may be due either to differential intrinsic fertility of the soil and climatic factors, or because of the extent to which irrigation and other productivity enhancing inputs have been applied. This is particularly so between the two regions of our study.

Whatever cut-off points we choose, we are inevitably going to come up against some disjunction between economic class and acreage groups, not only in terms of some overlap of classes between our selected acreage groups, but also with some poor peasants falling in

the higher acreage groups and some rich peasants in the lower. There is nothing we can do about the latter, but we can attempt to minimise the former by selecting our cut-off points with regard to both the different modes of production postulated in each region, and their differential levels of irrigation and capitalisation, which will be outlined in Chapter 5.

This inevitably raises the question of whether the same cut-off points should be used for Western and Eastern UP, or whether they should differ between the regions. As we show in the table below, this is going to make a big difference to comparative class structure in the two regions. If for instance we choose to demarcate the poor peasantry in both regions as operating holdings below 2½ acres, the middle peasantry between 2½-5 acres and the rich peasants and landlords above 10 acres, it is going to result in a different class structure in the Eastern Region, than if we take account of the less favourable agricultural conditions in that region and set the cut-off points higher.

		Western	Eastern	Eastern with higher cut-offs	
acres	class	%	%	acres	%
No land	landless	31.6	13.8	No land	13.8
Below 2.5	poor peasants	24.2	53.4	Below 5.0	74.4
2.5-5.0	middle peasants	22.2	20.6	5.0-10.0	8.2
Above 5.0	rich peasants and landlords	22.1	11.9	Above 15.0	3.7

While using the same cut-off points results in a class structure which in the Eastern Region is baised towards the poor peasantry, it is likely that for the reasons set out above this does not reflect the true extent of this class in a region which we have characterised as displaying a mode of production which was predominantly semi-feudal at this date. It is possible that for the reasons set out above a more

accurate picture of the class structure may be provided if we use higher land-holding cut-off points to demarcate the classes in the Eastern Region than in the Western Region. If this is done, and we classify those with holdings below 5 acres as poor peasants, then nearly three-quarters of the distribution in the Eastern Region fell into this class in 1971, just 3.7% into the rich peasant/landlord class, and 8.2% into the middle peasant class. By contrast in the Western Region, the poor peasantry accounted for just under a quarter of the total distribution the rich peasant class 22.1% and the middle peasantry 22.2%. We would suggest that this better reflects the actual class situation in the two regions at this date. A point which will be reinforced as the analysis of irrigation, capital and farm production is pursued in Chapters 5 and 6.

THE WESTERN REGION

On the basis of the landholding data examined in this Chapter it is clear that the major polarization in the landholding structure of Western UP was between the 31% of the distribution who operated no land (although the evidence suggests that they did in fact own small parcels) and the landholding classes with holdings between 5 and 25 acres who comprised nearly 22% of the distribution (32% of cultivating households, if we exclude the nil operating group). They cultivated an enormous 62% of the total land area. It is tempting to characterise the population of landless as agricultural labourers, and indeed it is likely that this was by far the most predominant occupation of this group, but as will be shown in Chapter 7, the landless wage-earner population of Western UP, was a far from homogenous group in 1971.

Inevitably, whatever cut-off points we use there are going to be overlaps. Furthermore, it is only as the evidence from subsequent

chapters builds up that we shall be able to justify our choice, so this is in many respects an a priori exercise at this juncture. In the table below we set out the class structure as envisaged in the Western Region.

Size Class Operational Holding	Class	%	% of cultivating population	% of land
Acres				
No Land	Landless	31,6	-	-
Less than 2,5 acres	Poor Peasants	24,2	35,3	9,9
2,5-5,0 acres	Middle Peasants	22,2	32,9	26,6
More than 5,0 acres	Rich Peasants	22,1	32,4	63,8

We have characterised the land-holding groups above 5 acres as rich peasants. This is a fairly wide-range, and in line with Utsa Patnaik's analyis, is intended to take account of differences in capital and irrigation resources, productivity and the number of people in these households. It is in these groups that we would expect to find a class of capitalist farmers with high levels of output and productivity, who reinvested their surplus productively in agriculture, thereby increasing the organic composition of their capital in a productivity-enhancing spiral. At the same time, as we will show in Chapter 6, they were likely to have used hired as well as family labour in cultivation and were therefore likely to be the principal employers of the large class of landless identified above. The data indicates that the majority of this class was in fact owner-occupiers, and it is suggested that where land was taken on lease, it was done out of choice, and frequently on advantageous terms. (See Table 5, earlier). We see from the table above that they comprised just 22.5% of the total distribution, (32.4% of the cultivating population excluding the nil operating group) and cultivated a massive 63.8% of the land. Most of this land was owned (61.4% of the owned

land in the region).

Also of significance, is the identification of a large group of cultivators with holdings between 2.5 and 5 acres who comprised more than 22% of the total distribution (32.9% of the cultivating population, excluding the nil operating group) and cultivated nearly 27% of the land. We have characterised this group as a class of middle peasants. Lenin viewed the middle peasantry as a transitional class between the pre- and post-capitalist agrarian class structures. He saw their position as extremely precarious. Although usually able to make ends meet in good years, crop failures and other disasters threaten the very existence of this class. "In its social relations this group fluctuates between the top group, towards which it gravitates but which only a small minority of lucky ones succeed in entering, and the bottom group, into which it is pushed by the whole course of social evolution."[*Lenin, 1964: 181*] However, this reckons without opportunities for members of this class to hire out their labour in order to supplement their income from self-cultivation. In line with Bhaduri's theory, it is our contention that the higher productivity of Green Revolution technology pushed up labour demand and hence wages on the farms of rich and capitalist farmers. We believe that the middle peasantry was an important beneficiary of this so that they were insulated from having to sell land in order to meet debt and other commitments, As a result the continued existence of the middle peasantry is in fact far more secure and stable in the Western Region of Uttar Pradesh than traditional Marxist theory had predicted. The tenacity of the middle peasantry as a class is a phenomenon which is by no means unique to UP. (See Chapter 2.)

Cultivators operating holdings of less than 2.5 acres we have

characterised as poor peasant or marginal farmers. They comprised 24.2% of the total distribution (35.3% of cultivating households) and cultivated about 10% of total area. The poorest of these marginal farmers (ie. those with holdings of less than 1.25) of an acre were overwhelmingly tenants, and as such were at risk of falling into the ranks of the totally landless. The plight of this class will be considered in detail in Chapter 8.

We would suggest that this pattern of landholding and tenancy identified in Western UP points towards a class structure with which presupposes a mode-of-production incorporating distinct capitalist tendencies. Further evidence for this will be adduced in subsequent chapters.

THE EASTERN REGION

In Chapter three we demonstrated the different historical experiences of the two regions, laying particular stress upon the factors which led to a landholding structure which we characterised as semi-feudal with an important polarisation between landlords and poor peasants. In the introductory section of this chapter we showed that while the Zamindari Abolition Act dispossessed the largest of the tax farmers in Eastern UP, it left the land-holding and tenancy structure of the region substantially unchanged. unlike the West where it reinforced the position of the rich peasantry.

In this chapter we demonstrated how the pattern of landholding and tenancy differed substantially between Eastern and Western UP in 1971. Furthermore, as we shall show in subsequent chapters, irrigation, other inputs, and productivity showed huge variations between the regions by size-holding groups at this date. For all these reasons we have chosen higher land-holding cut-off points to demarcate the classes in the Eastern Region, as illustrated in the

table below.

Size Class Operational Holding	Class	%	% of cultivating population	% of land
Acres				
No Land	Landless	13,8	-	-
Less than 5,0 acres	Poor Peasants	74,4	86,3	54,8
5,0-10,0 acres	Middle Peasants	8,2	9,5	21,7
More than 10,0 acres	Rich Peasants/L'lords	3,17	4,4	22,7

Those households cultivating holdings up to 5.0 acres we have characterised as poor peasants. They comprised nearly three-quarters of the entire distribution, (more than 86% of the cultivating population and cultivated just below 55% of the land). The implication is that we are dealing with an economy in which the poor peasantry predominated in the class structure. Within this class, it is our belief that there was encapsulated a particularly disadvantaged group with holdings below 2.5 acres whom it would be accurate to describe as the very poor peasantry. They comprised 53.8% of the total distribution, 62.4% of the cultivating population and cultivated just over a quarter of the land and will be examined in detail in Chapter 8.

The fact that the poor peasants of the region relied quite considerably upon leasing-in of land to supplement their own ownership plots (see Tables 8 and 9, pp 148, 149) meant that they were basically a class of petty tenants and that the payment of rent was an important form of labour exploitation in the region at this date.

A class of tenants and the payment of rent presupposes a class of landlords reliant upon that rent for at least a part of their income. The payment and receipt of rent, in some form or other, as the vehicle by which surplus value is appropriated, is therefore pivotal in binding to each other the landlord and tenant in a set of exploitative

and essentially semi-feudal relations of production in much the way that Bhaduri anticipated. This was all made possible because of the fundamental discrepancy between the land resource position of the tenant and the landlord identified here. Unlike the West where a large class of self-cultivating rich peasants was identified, it was the class division between tenant and landlord that was the most important production relationship in the region.

Although, the big landlords of the 19th century were effectively dispossessed by the Zamindari Abolition Act and subsequent ceiling legislation, it is our contention that the landlords of the region, whom we have classified tentatively as having holdings of more than say 10 acres, and who comprised 3.7% of total households (4.4% of landed households) and possessed more than 22.7% of the area operated, relied for their incomes in varying degrees on a combination of labour-cultivation of their holdings, landlordism including letting out their land on a sharecrop basis and usury. We saw from the data that leasing out grew in importance as size of holding increased, while leasing in was concentrated in the very poorest peasant groups, particularly those with under 2.5 acres of land. (See Table 7 p. 144.)

This is not to say that some rich peasants and capitalist farmers, who invested productively in agriculture did not exist within the size classes with holdings above 10 acres. However, it is our belief that such a class was too small and the levels of investment too low, to exert a sufficient pull upon the economy to transform it from what was essentially a semi-feudal economy.

As in the Western Region, we also identified a class of middle peasants in Eastern UP, whom we characterised as operating between 5 and 10.0 acres of land. This class was much less important in the

Eastern Region, comprising just 8.2% of the total distribution (9.5% of cultivating households), and operated 21.7% of the land. We believe that because the agriculture of the Eastern Region was more backward and opportunities for highly paid agricultural wage labour much more limited than in the West, that the middle peasantry was much more precariously balanced, and in constant danger of expanding still further the enormous class of poor peasant marginal farmers who formed the bulk of the population.

A much smaller percentage of the distribution in Eastern UP was landless; less than 14% compared to 32% in the Western Region. This indicates that alternative employment opportunities were much more limited, so that wherever possible the marginal farmers clung on to their paltry holdings - even where it meant levels of indebtedness which perpetuated their poverty. This will be explored in detail in Chapter 8

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CHAPTER 5

IRRIGATION, CAPITAL AND WEALTH

PART I - IRRIGATION

1. AREA IRRIGATED IN WESTERN AND EASTERN UP
2. IRRIGATION BY SOURCE
   - 2.1 THE WESTERN REGION
   - 2.2 THE EASTERN REGION

PART II - LIVESTOCK AND CAPITAL

1. BASIC AGRICULTURAL IMPLEMENTS
2. DRAUGHT LIVESTOCK
3. TRACTORS AND THRESHERS

PART III - THE VALUE OF ASSETS

1. TOTAL ASSETS
2. PRODUCTIVE ASSETS
3. NON-PRODUCTIVE ASSETS

CONCLUSIONS

REFERENCES

PART I - IRRIGATION

In the previous chapter we analysed in detail the distribution of owned and operated area by size class in the two regions in 1971-72, and discussed some possible implications for their class structures and economies. In this chapter we shall be taking the analysis a step further by looking at the distribution of capital and wealth by size class in Western and Eastern UP at this date. We shall be interested in both the total stock of capital in each region, and in the way it was distributed by size class. While the former gives an indication of the productive potential of the two regional economies, the latter will help to refine the analysis of the class structure by pinpointing the extent to which specific landholding groups had or had not control over important factors of production other than land. Building between them a comprehensive picture of the distribution and control of the forces of production in the two regions, this and the previous chapter together form the essential foundations necessary if we are to be in a position to analyse and understand the way inequalities in income and wealth were generated in the actual process of production.

Theoretically, the process of accumulation is fundamental in defining the mode of production. Capitalism, by its very nature implies the accumulation of capital by a class of capitalists. Within the context of agriculture, as has already been fully explored in Chapter 2, a capitalist class is much less easy to identify than is the case for an industrial economy, where there is a much clearer distinction between owners and non-owners of productive resources. In India the most advanced agricultural regions are still, even now, far from "capitalist" in the sense of a clear division between the

classes in this respect.

The accumulation of capital cannot be divorced from the process of technological progress to which it is a natural companion and this raises further questions and problems with regard to the interaction between technology and property relations in agriculture,

Amit Bhaduri's theory of backward agriculture sees this interaction as central. In simplified form: "the level of technology will broadly determine the level of output, while property relations in land and credit will largely influence debt and income positions of peasant households. It is their changing position of debt in relation to the changing level of output over time which will exert its influence on the process of forced commercialization - whether it tends to strengthen or begins to disintegrate over time as a method of surplus extraction in response to technological improvement." [*Bhaduri, 1983: 52*]

Fundamental to the whole theory is the nature of the class structure, particularly whether agriculture is dominated by a class of productive peasant cultivators, who reinvest their surplus productively in their holding, and therefore obtain the bulk of their livelihood from selling their agricultural output, or whether agriculture is dominated by a class of landlord/moneylenders whose main livelihood is the result of rent and usury.

These two classes can be expected to respond quite differently to technological innovations. Whereas the former will see technological improvements as a means of unambigously increasing their output, and hence their income, the landlord/moneylender takes a different view. Since the income of a landlord depends both on commercial exploitation through usury and on rent as a fixed share of the product, it is quite conceivable that under a range of conditions the landlord class will

not respond favourably to opportunities for improved agricultural technology, although they have the financial capability of doing so. Such improvements in agricultural practices are likely to lead to higher income for the tenants also (under a more or less fixed share arrangement), so that they may need to borrow less for consumption. Consequently, commercial exploitation in the form of income from usury may decrease as land productivity and rent increase. Unless a landlord feels confident that he is going to be a net economic gainer in this process, improvement of agricultural technology cannot become an unambiguously attractive economic proposition to him. The result is technological stagnation.

The expropriating class in backward agriculture, says Bhaduri, may typically be considered as composed of two separate classes engaged in surplus extraction in their distinct ways: a class of prosperous agriculturists involved in the process of production-augmenting accumulation and another class of merchants and moneylenders engaged in forced commerce with each class operating almost exclusively through its separate method of surplus extraction.

There are two broad type of investment carried out by the two respective classes. Productive investment, carried out exclusively by the prosperous agriculturist class raises the level of agricultural output. On the other hand, investment may be considered unproductive if it simply changes the distribution of agricultural output in favour of the investing class at a more or less constant (or even declining) level of output, so that those investors gain even though the aggregate agricultural output may not have increased. Such unproductive investment is assumed to be carried out by the class of merchants and moneylenders in backward agriculture and predominantly takes the form of consumption loans to poor peasants.

Provided there is an adequately developed and fairly unrestricted market for transactions in land rights, the method of forced commerce then succeeds in transforming the peasants' traditional means of livelihood into means of production under the control of the expropriating class. When those means of production (land) are only formally expropriated as ownership rights, leaving the basic organization of production relatively unchanged, the result is simply that the distribution of agricultural output changes in favour of property income, at the expense of the poor peasantry, while the productive capacity of agriculture remains largely unaltered. On the other hand, when those means of production (land) are utilized by the expropriating class through substantial reorganization of production, such as to achieve economies of scale, via mechanisation and labour hiring, the productive capacity of agriculture itself may increase giving rise to a cumulative process of output-raising investment. [*Bhaduri, 1983: Ch. IV*]

Although, as has already been explained, Bhaduri's theory is very difficult to test because of the problem of obtaining data on debt and forced commercialization, there is much in it which is relevant to our study of poverty and inequality in Western and Eastern UP. In the previous chapter we identified a class of medium-sized cultivating proprietors in the Western Region. In this chapter we shall particularly note the extent of their productive investment. Similarly, it has already been shown that tenancy is very extensive in the Eastern Region, with the implication that there exists in the region a substantial class of landlord-usurers. The nature and extent of their investment will add more information on this class.

The chapter will be divided into three basic sections. The first will deal with irrigation, the second with the physical

magnitudes of capital, and the third with money equivalents of both capital and non-productive assets, i.e. wealth.

In this Chapter the data source used is the Agricultural Census of Uttar Pradesh for the year 1970-71. As we see from the table below, when we compare the distribution of operational holdings from this Census, with that of the National Sample Survey 26th Round, which was used in Chapter 4, it is apparent that there are some discrepancies between the two sources.

Table 1

Distribution of Operational Holdings for Western and Eastern UP - 1970-71 Agricultural Census and 26th Round of National Sample Survey - 1971-72 Compared

Size Class	Western Region		Eastern Region	
Acres	Census %	NSS %	Census %	NSS %
Nil		31.6		13.8
Less than 1.23	39.2	7.1	56.7	30.6
1.23-2.5	20.1	11.7	18.6	23.3
2.5-4.9	19.7	22.2	13.9	20.6
4.9-7.4	9.1	11.0	5.1	6.3
7.4-10.0	4.8	5.3	2.3	1.9
10.0-12.4	2.7	2.5	1.2	1.5
12.4-25.0	3.7	2.9	1.7	2.0
25.0-49.4	0.6	0.4	0.4	0.3
Above 49.4	0.06	-	0.8	0.02

Source: *Agricultural Census in UP 1970-71, Table 1, pp.131 & 143; and National Sample Survey 26th Round, Tables on Landholding 1971-72,* Table 1

The main reason for this is that whereas the Agricultural Census of 1970-71 relied principally upon village land records for its raw data, the National Sample Survey is based upon actual village surveys which relied upon interviewing the respondents. For this reason it is likely that despite its less than universal coverage, the National Sample Survey data is the more accurate. Village land records are notoriously unreliable, despite legislation requiring that they should be maintained accurately and up-to-date. This is particularly the

case when tenancy is concerned, as so many leases are oral and unrecorded. Indeed, the data we have already examined on ownership and operational holdings in the Western Region reinforces this conclusion. We showed in Table 2 of Chapter 4 how there was a shift of about 30% of the entire population of households from the smallest ownership size class to the nil operating class. This fits very well with the data in the table above and makes explicable the nearly 40% of holdings classified in the less than 1.23 acre size class by the Agricultural Census. We know from our earlier data that this is only the case on paper - i.e. in the land records, and that in fact the majority of these holdings were either leased out or cultivated by relatives as part of a larger holding. Overall, for the Western Region, it would appear that the Agricultural Census tends to overestimate the number of holdings in the less than 2.5 acre size classes, and to slightly overestimate the number of holdings in the size classes above 10.0 acres, once again the result, we would suggest, of unrecorded leasing out of land by these larger holdings.

In the Eastern Region if we accept that the National Sample Survey is the more accurate, then the Agricultural Census overestimated holdings of less than 1.23 acres while it underestimated the proportion of holdings in size classes up the 7.4 acres, and between 10 and 25 acres. We would tentatively suggest that this is because many smallholders lost their land in de-facto but unrecorded transfers to larger cultivators as a result of the type of debt mechanism hypothesised by Bhaduri and outlined in detail in Chapter 4.

Throughout this Chapter we have used the National Sample Survey landholding data to obtain aggregations of the share of different classes in irrigation and capital resources. Where appropriate the NSS figures have been adjusted to exclude the nil operating group.

1. AREA IRRIGATED IN WESTERN AND EASTERN UP

The most important adjunct to land in India is assured irrigation. Indeed, Shigeru Ishikawa regards irrigation of such crucial significance in the development of agriculture in Asia, that he has developed the notion of it being a "leading input". [*Shigeru Ishikawa, 1967*] In a country where the land depends for its productivity on the timely appearance of the monsoon, the failure or even late arrival of the rains can ruin an entire seasons crop. For the individual poor peasant or agricultural labourer, dependent so directly upon agriculture for his livelihood and consumption needs, a drought may well mean economic disaster, and even starvation for his family.

The benefits of irrigation as a protective measure freeing the agriculturalist from the worst vagaries of the monsoon are self-evident. Equally important are the positive benefits that assured irrigation can bestow on the overall productivity of the land. It is widely agreed by economists in India that the spread of assured irrigation to as much land, and to as many agriculturalists as possible, is the one single factor which will do most to raise agricultural productivity. [*Dasgupta, 1977: 85*] [*Tyagi, 1974*] [*Hanumantha Rao, 1979*] James K. Boyce, for instance, in a recent major study of constraints to agricultural growth in Bangladesh and West Bengal, provides support for Ishikawa's hypothesis, and argues that "water control (irrigation, drainage and flood control) is today the 'leading input', the binding constraint on agricultural growth, notwithstanding the region's relatively abundant natural water supply". [*Boyce, 1987: 47*] "A strong complementarity between irrigation and fertilizer use, expected on agronomic grounds, is confirmed by an inter-district analysis of irrigation and fertilizer

use intensities in West Bengal and Bangladesh." He provides evidence for a strong positive relationship between irrigation and yield levels ". . .with correlations since the mid 1960s generally in the 0.7-0.9 range."[*Boyce, 1987: 198*] Despite widespread recognition of its crucial role, there are still vast tracts of India where irrigation facilities are at best rudimentary.

Although the state of Uttar Pradesh as a whole is much better endowed with irrigation facilities than say Rajasthan, Maharashtra or Bihar, there are wide disparities between the regions of Eastern and Western UP. In Chapter 3 we dealt at some length with the impact of the British on the regional economies, and in particular the spate of canal building undertaken in the 19th century in the Western Region. As we pointed out in that chapter, compared to the West, Eastern UP remained underdeveloped and neglected. Equally significant, is that despite the existence of easily accessible and exceptionally large resources of underground water, Eastern UP never shared in the tubewell boom of the 1960's to the extent of the Western Region. [*Dhawan, 1980: A115*] As a result, by 1971 while 53.9% of the net cultivated area was irrigated in Western UP, only 39.8% was irrigated in the East. (See Table 5, p. 239) Moreover, as will be shown below, there were very considerable differences between the regions in the quality of that irrigation.

In Table 1 below we present the percentage of holdings and area in the two regions which comes under the category of being <u>wholly</u> unirrigated.

Table 2

Percentage of Holdings and Area Wholly Unirrigated in 1970-71

	Western Region		Eastern Region	
	Holdings %	Area %	Holdings %	Area %
Less than 1.23	46.6	39.4	41.5	36.7
1.23-2.5	36.4	32.6	34.0	31.4
2.5-4.9	28.2	25.4	30.4	28.1
4.9-7.4	21.4	19.6	29.4	27.0
7.4-10.0	17.4	16.0	29.4	26.7
10.0-12.4	15.8	14.5	30.0	27.2
12.4-25.0	13.9	12.6	31.5	27.9
25.0-49.4	14.1	12.6	34.8	29.3
49.4-74.0	20.3	16.8	43.0	32.4
74.0-99.0	25.6	20.5	47.9	33.7
99.0-124.0	34.9	25.3	49.0	32.5
More than 124.0	38.0	30.6	56.1	31.1
Total	35.0	21.0	37.4	29.6

Source: *Agricultural Census in UP 1970-71, Table II: pp. 131 & 143*

Looking at the totals first, it is interesting that whereas the percentage of holdings unirrigated was fairly similar in the two regions with respectively 37.4% for the East and 35% for the West, there is a much larger discrepancy when we compare the amount of land involved: 29.6% and 21% respectively. The reason for this is not hard to find for it is apparent from the table that a much higher proportion of holdings and area in the intermediate and large size classes was wholly unirrigated in the Eastern Region than in the West. When we bear in mind that a smaller absolute number of holdings fell into the intermediate groups in Eastern UP as far as landholding distribution is concerned, the totals become easily explicable.

Taking the distribution for the Western Region first it is interesting that the largest percentage of unirrigated holdings fell in the two smallest size classes, less than 1.23 acres and 1.23-2.5 acres with respectively 46.6% and 36.4% of holdings and 39.4% and 32.6% of the area wholly unirrigated. There was a steady decline in

the percentage of holdings without any irrigation up to 25 acres. In the 12.4 to 25 acre size class only 13.9% of holdings and 12.6% of the land was wholly unirrigated. Thereafter the percentages increase with size of holdings so that by the time we get to the largest holding size - those of more than 124 acres, 38% of holdings and 30.6% of area was totally without irrigation.

What conclusions can we draw from this, bearing in mind that we are dealing with wholly unirrigated land? Firstly, we are in some cases more than twice, and in others more than three times as likely to find wholly unirrigated holdings at the two extremes of the distribution than in the middle. Why should this be? Obviously, given the great differences in the sizes of the holdings involved we must be dealing with different sets of factors. Let us first of all be clear about the size classes we are dealing with and their importance in the overall distribution. In this context it is convenient to divide up the distribution at the 2.5 acre point and the 50 acre point. According to the Agricultural Census for 1970-71, 59.3% of holdings and 17.2% of the land was operated as holdings below 2½ acres, (although, as we showed in Table 1 above, this probably overestimates the true figure - the NSS data indicates that 18.8% of households operating 8.8% of land had holdings below 2.5 acres). At the other end of the distribution only 0.17% of households had holdings above 50 acres, and operated just 1.9% of the land. (There were no holdings in this size class according to the NSS). In any event, the lack of irrigation at the bottom end of the distribution was of greater consequence for the economy and people than it was at the top end.

Let us consider the bottom end of the distribution first. It is the size classes below 2.5 acres that in Western UP we have

characterised as the poor peasantry. The large percentage of its land that was unirrigated is therefore not surprising. The first point to make is that these poor peasant holdings below 2½ acres were way below the minimum economic size necessary to make either an electric or diesel tube-well worthwhile, even if they were able to raise sufficient finance to invest in one. [*Dhawan, 1978: 61*] Consequently, holdings in this size group depended either upon more primitive methods of groundwater irrigation such as masonry and dug (kutcha) wells or upon public sources of irrigation such as canals. Even masonry and dug wells cost money to construct and the latter are liable to cave in and can consequently have a very short life. As we have already shown in Chapter 4, many poor peasant households with these small holdings in Western UP depended to a substantial degree on agricultural labour for their livelihood anyway, and it is unlikely that they had sufficiently high incomes to allow them to invest their scarce resources in irrigating a plot of land which even with irrigation could never be large enough to supply their family's needs, especially when they were denied access to the credit which would ease the burden of such an investment. [*Lipton, 1976: 544*] The cost and allocation of canal water was largely controlled by those with power in the countryside so that whether or not poor peasants benefitted from this source of irrigation depended largely upon the decisions of larger landholders. The question of why between 20% and 38% of holdings in the above 50 acre size classes were wholly unirrigated is rather more difficult to answer. To put things in perspective we should mention that the total number of wholly unirrigated holdings in the above 50 acres size classes came to only 796 out of a total of more than 4½ million holdings (all sizes) for the region as a whole according to the Agricultural Census. The first point to make is

that larger holdings had a much larger proportion of land lying fallow or not cultivated than small and intermediate sized holdings. Whereas the latter had about 6% of land in this condition it is as high as 26% in the 50-100 acre size classes. [*Board of Revenue, 1971: 133*] It is also the size class in which absentee landlords were most likely to predominate and who may have been content so long as they had some form of steady income from their land without the need to bother with personal management or expend much in the way of funds on investment. Certainly, their holdings were extensive enough to provide a good income even though they did not utilise the land to its maximum productive potential.

In contrast to the two extremes of the distribution, a much smaller percentage of holdings and area between 5 and 25 acres was <u>wholly</u> unirrigated, ranging between 21.4% of holdings and 19.6% of the area in the 4.9-7.4 acre size class, to just 13.9% of holdings and 12.6% of area in the 12.4-25.0 acre size class. It is these size classes that we have already characterised as the rich peasantry, and indeed to have contained within them an emergent class of capitalist farmers. It is thus significant that they had a far smaller proportion of <u>wholly</u> unirrigated land than elsewhere in the distribution and fits in well with our formulation of the class structure in Chapter 4.. This will be discussed more fully when we come to look at irrigation by source.

In the <u>Eastern Region</u>, although slightly less area was <u>wholly</u> unirrigated in the 5-25 acre size classes than for either the smaller or larger holdings, the contrast was by no means as marked as in the Western Region. Comparing this section of the distribution for both regions we notice that there were differences which ranged between 38% for the 4.9-7.4 acre size class to 121% in the 12.4-25.0 acre size

class in the proportion of land wholly unirrigated in the two regions. Even in the classes up to 124 acres there were differences between the two regions which ranged between 139% in the 25-50 acre size class to 28% in the 99-124 acre size class. It is only at the two extremes of the distributions that there was any similarity between the two regions and it was only for the under 1.23 acre size class that a larger percentage of land was wholly unirrigated in the Western Region than in the East.

What conclusions can we draw from the overall much larger percentage of wholly unirrigated land in the Eastern Region, and the flatter distribution? By far the most significant difference between the regions was the much larger percentage of holdings wholly unirrigated in the land holding groups above five acres. In groups with holdings between 4.9 and 12.4 acres, an average of nearly 30% of holdings were not irrigated in the Eastern Region compared to an average of about 18% for the West. The size group with holdings between 12.4 and 25.0 acres which included classes we defined as the rich peasantry and landlord classes had more than 31.5% of its holdings unirrigated. This is in stark contrast to the situation in the Western Region where less than 14% of this size group had wholly unirrigated holdings. But why, given the undoubted benefits to be gained from irrigation, did so many households have no irrigation? Was it indicative of a lack of resources or insufficient credit, or did they simply not regard the investment worth their while? Or, were the households who possessed these holdings mainly landlords rather than cultivators? Were the holdings in fact largely cultivated by de-facto tenants and share-croppers on oral and unrecorded leases, as highlighted in Chapter 4, and if so, were they afraid that if they invested in productivity-enhancing improvements to

their land, that their tenants or sharecroppers would be able to obtain higher incomes and thereby break the bond of semi-feudal debt dependence in the way hypothesised by Bhaduri and outlined in detail in Chapter 2? Or was it because there was greater availability of public irrigation, particularly canals, in the Western Region? We hope to provide some answers to these questions as the analysis proceeds.

In Table 3 below we provide data calculated from the Agricultural Census on the percentage of holdings wholly irrigated.

Table 3

Percentage of Holdings and Area Wholly Irrigated 1970-71

	Western Region		Eastern Region	
Size Class in acres	Holdings %	Area %	Holdings %	Area %
Less than 1.23	42.3	41.5	36.7	33.2
1.23-2.5	35.7	35.4	21.2	20.3
2.5-4.9	29.2	28.9	12.6	12.1
4.9-7.4	24.2	24.1	8.0	7.8
7.4-10.0	21.6	21.6	6.4	6.3
10.0-12.4	19.8	19.8	5.4	5.3
12.4-25.0	16.8	16.6	4.25	4.2
25-49.4	12.0	11.8	2.9	2.8
49.4-74.0	5.8	5.8	2.0	2.0
74.0-99.0	4.2	4.3	1.6	1.6
99.0-124.0	2.1	2.1	1.4	1.3
More than 124.0	2.1	1.5	0.18	0.14
Total	32.0	24.3	27.5	12.6

Source: *Agricultural Census in UP 1970-71, Table II: pp. 131 & 143*

As we might expect, there was to some extent an inverse relationship between the proportion of land wholly unirrigated and the proportion of land wholly irrigated. Taking the Western Region first it is interesting that both in terms of the percentage of holdings involved, and the percentage of area, the percentage of land wholly irrigated declined with increasing size of holding. Splitting up the distribution again at the 2½ acre and 50 acre size class we note that

the two smallest size classes which comprised the poor peasantry, had respectively 41.5% and 35.4% of their area wholly irrigated. This is most interesting when we bear in mind that these were the two size classes which were also most likely to cultivate wholly unirrigated land. It is therefore possible that we are seeing at the bottom end of the distribution a polarisation within the class of poor peasants itself. On the one hand a class of smallholders cultivating low productivity unirrigated land, reliant predominantly upon agricultural labour for their livelihood, were in the process of differentiating into a class of full-time agricultural labourers. On the other hand there existed a class of poor peasant smallholders whose continued existence in this class was more secure. Cultivating higher productivity irrigated land, their reliance upon agricultural labour for a livelihood was not so great. Instead they relied predominantly upon their holdings for their livelihood and irrigated them to the maximum extent in an attempt to maximise productivity and output.

Looking at the top end of the distribution, (above 50 acres) the position was quite different with only between 5.8% and 2.1% of holdings wholly irrigated. As we mentioned earlier, only 796 holdings in Western UP were above 50 acres anyway so the number completely covered by irrigation can be counted in tens rather than hundreds. This is interesting, as it is indicative that there was still a long way to go before capitalisation reached its full potential in this part of the distribution.

As we might expect, in view of our earlier figures on unirrigated land, a much larger percentage of holdings and area was wholly irrigated in the mid-part of the distribution between 5 and 50 acres (the rich peasantry) than at the top end. The percentages range between 24.2% of holdings and 24.1% of land in the 4.9-7.4 acre size

class and 12.0% of holdings and 11.8% of land in the 24.0-49.4 acre size class. The fact that a farmer with a viably-sized holding was in a position to irrigate it says something about his economic position. He obviously commanded control to his own satisfaction over a most valuable resource which enhanced the productive potential of his land and enabled him to produce a larger surplus than would otherwise be possible. This gave him the capacity to invest in ventures which might be regarded as risky by a farmer with a smaller or less well irrigated holding. In particular, it placed him in a good position to take advantage of the high yielding varieties of seeds and package of practices for he did not have to use all his irrigated land in what was often regarded as a somewhat uncertain undertaking, but could continue with existing known varieties alongside the new, and was therefore sure of some output even if the new seeds should be a failure.

It is among these rich peasant farmers in the intermediate size groups with wholly irrigated holdings that we are most likely to find an emergent capitalist class of agriculturists.

Looking now at the Eastern Region, we find that as in the case of the West, there was a steady decline in the percentage of holdings and area wholly irrigated with increasing size class. However, the percentages were throughout much lower for the Eastern Region, particularly for the group of holdings between 10 and 50 acres that we defined in Chapter 4 as the class of rich peasants/landlords. Taking the area figures alone for this section of the distribution, then in each case the Western figure exceeds the Eastern by at least 200% and in the case of the 12.4-25.0 acre size class by 300%. This is particularly significant. With only between 8% and 2.9% of these viably sized holdings wholly irrigated it is clear that there was a

great deal of unutilised productive potential in the region. If a capitalist class did exist somewhere in this group it must have been very small indeed.

The situation of the holdings above 50 acres was even worse with only 2% to 0.18% of holdings wholly irrigated and an even smaller percentage of the land. It was only in the two size groups below 2½ acres, the class of very poor peasantry, who according to the National Sample Survey, comprised more than 63% of all holdings in the region and operated 26% of the land that we begin to get some respectable levels of wholly irrigated land, 33.2% of area for the under 1.23 acre class and 20.3% for the 1.23-2.5 acre class. However, this is still considerably below the corresponding figures for the Western Region. If we assume that these were by far the poorest landholders in the Region then we have to account for their capacity to irrigate their holdings. The first point to make is that given the lack of alternative ways of earning a living such as agricultural labour, these very poor peasants were more likely to be totally dependent on their holdings for their livelihoods. As such, they had a great incentive to cultivate them to the maximum extent possible. If they could irrigate them they were in a better position to achieve this. However, there is still the question of the quality of this irrigation - and it is more than likely that they are heavily dependent on primitive forms such as dug wells which cost much less than more efficient types of irrigation. This we will assess subsequently. There is also the further point highlighted by Krishna Bharadwaj, that landlords may prefer to divide up and let out their irrigated land, presumably in an attempt to take full advantage of the large inputs of "free" family labour which have historically contributed towards an inverse relationship between size of holding and productivity in

traditional agriculture. In that way the landlord stands to gain in terms of the absolute value of his rent or share of the produce. [*Bharadwaj, 1974: 53-54*] This is the most likely explanation in view of the widespread extent of tenancy among these poor peasant cultivators in the region. This phenomenon will be discussed in greater detail in the next chapter.

Of course, wholly irrigated land is not the whole picture. There was quite a large percentage of holdings in each region which are partially irrigated, and in the table below we give the percentage of holdings and area in this category.

Table 4

Percentage of Holdings and Area Partially Irrigated 1970-71

	Western Region		Eastern Region	
Size Class in acres	Holdings partially irrigated %	Area irrigated under this category %	Holdings partially irrigated %	Area irrigated under this category %
Less than 1.23	11.1	6.6	21.4	15.0
1.23-2.5	27.9	14.9	44.9	25.5
2.5-4.9	42.5	23.3	57.0	30.8
4.9-7.4	54.4	30.7	62.7	32.9
7.4-10.0	60.9	35.2	64.3	32.4
10.0-12.4	64.5	37.7	64.7	31.7
12.4-25.0	69.3	40.9	64.2	28.6
25.0-49.4	73.9	41.9	62.3	24.1
49.4-74.0	73.8	39.3	55.0	18.2
74.0-99.0	70.1	33.0	50.5	14.6
99.0-124.0	63.0	26.6	49.7	13.0
More than 124.0	59.8	22.6	43.7	9.4
Total	31.0	29.6	35.2	27.6

Source: *Agricultural Census in UP 1970-71, Table II: pp. 131 & 143*

Holdings were more likely to be partially irrigated in Eastern UP where it applied to 35% of all holdings, than in Western UP where 31% of holdings were involved. However, when we look at the area actually irrigated under this category the position was reversed with

27.2% for the Eastern Region and 29.6% for the Western Region.

Interestingly, the amount of area involved in the Western Region reached its peak in the 25-50 acre size class with 41.9% - apparently a compensation for not having as much wholly irrigated area as smaller holdings. By contrast, in the Eastern Region the largest area of land irrigated in the partly irrigated category came much earlier in the 4.9-7.4 acre size class with 32.9% of area irrigated. This was a reflection of the lower overall percentage of of wholly irrigated area in the Eastern Region in the mid-groups as compared to the West.

Adding together the area irrigated under this category with the area wholly irrigated gives us the total net irrigated area by size class for each region. This is presented in Table 5 below.

Table 5
Total Net Irrigated Area 1970-71)

	Western Region	Eastern Region
Size Class in acres	Area %	Area %
Less than 1.23	48.1	48.2
1.23-2.5	50.4	45.6
2.5-4.9	52.3	43.0
4.9-7.4	54.8	40.7
7.4-10.0o	56.8	38.7
10.0-12.4	57.6	37.0
12.4-25.0	57.5	32.8
25.0-49.4	53.7	26.8
49.4-74.0	45.1	20.25
74.0-99.0	37.3	16.2
99.0-124	28.7	14.4
More than 124.0	24.1	9.5
Total	53.9	39.8

Source: *Agricultural Census in UP 1970-71, Table IV: pp. 133*

The pattern closely followed that for wholly irrigated area, with total net area irrigated in the Western Region progressively exceeding the corresponding figure for the Eastern Region for every size class with the exception of the under 1.23 acre groups where the figures were almost identical at respectively 48.1% and 42.2% of the area.

Overall, 53.9% of the net cultivated area was irrigated in Western UP in 1970-71 compared to 39.8% in Eastern UP. In Western UP irrigation reached its peak in the 7½ to 25 acre size classes with between 56.8% and 57.6% of total area, whereas in the Eastern Region there was a progressive decline in net irrigated area with increasing size class from 48.2% of the under 1.23 acre class to 9.5% for the more than 50 acre group.

It is particularly significant that the series peaked in the middle of the distribution in the Western Region with the largest concentration of irrigation resources in the intermediate sized classes between 7½ and 25 acres i.e. those most likely to be accurately defined as rich peasantry. Between them they represented 10.7% of holdings and operated 38.6% of the land according to the National Sample Survey. The effect of the technological level and production methods of this class would therefore have quite a sizeable impact upon the economy as a whole, and upon other groups in the social structure. An important element in this is the source of irrigation. For instance whether a farmer uses predominantly public irrigation such as canals, or private groundwater sources such as tubewells, necessitating a heavy personal investment, is going to affect the level of investment in the economy as a whole, and the extent to which individual farmers accumulated capital for themselves. If the latter was the case then we may be on the way to identifying a "capitalist" or at least "proto-capitalist" class within the rich peasantry in the Western Region at this date.

So far, for the Western Region, we have tended to ignore the 2.5-4.9 acre size class despite the fact that it included about a fifth of holdings who cultivated about a fifth of the land area. It was clearly an important group in the overall distribution in the

region and in Chapter 4 we characterised this size class as the middle peasantry. The data examined so far in this chapter reinforces this decision. In terms of its control over land and irrigation it fell consistently about midway between the size class below and the size class above, so that no strong case can be made for including it with either the poor peasantry below or the rich peasantry above - it stood out as a separate class in its own right with a distinctly higher share of productive resources than the poor peasantry, and a lower share than the rich peasantry.

2. IRRIGATION BY SOURCE

2.1. THE WESTERN REGION

In Table 6 below we give the sources of irrigation by size class for the Western Region in 1970-71.

Table 6

Sourcewise Area Irrigated by Size Class of Holding

Western Region

Size Class in acres	Percentage Area Irrigated By					Total Net Irrigated Area
	Canals	Tanks	Wells	Tubewells	Other	
Below 1.23	17.5	0.6	11.1	17.9	1.1	48.1
1.23-2.5	18.4	0.5	11.1	19.3	1.0	50.4
2.5-4.9	19.0	0.4	11.3	20.6	1.0	52.3
4.9-7.4	19.7	0.3	11.6	22.2	1.0	54.8
7.4-10	20.1	0.4	11.1	24.4	0.9	56.8
10.0-12.4	20.0	0.4	10.3	25.8	1.1	57.6
12.4-25.0	19.4	0.2	9.3	27.4	1.0	57.5
25.09-49.4	17.7	0.2	6.5	28.1	1.2	53.7
49.4-74.0	13.8	0.2	4.4	25.7	1.0	45.1
74.0-99.0	8.9	0.2	3.4	23.2	1.6	37.3
99.0-124.0	5.2	0.08	2.1	20.4	0.9	28.7
Above 124.0	4.5	0.06	0.6	18.4	0.6	24.1
Total	19.0	0.4	10.4	23.1	1.0	53.9

Source: *Agricultural Census in UP 1970-71, Table IV: pp. 133 & 145*

Looking first at the totals it is apparent that the three major contributors to irrigation in the Western Region were canals 19%,

wells 10.4%, and the most important of all, tubewells covering 23.1% of the net cultivated area. Tanks and "Other" were insignificant, serving respectively only 0.4% and 1% of net cultivated area. We shall therefore be concentrating our attention on the three former irrigation sources.

A CANALS

In Chapter 3 we mentioned the importance of the development of vast networks of canals by the British in this region during the 19th century. These networks are still in existence, and indeed were expanded during the 20th century, so it is not surprising that in 1970-71 canals should irrigate nearly 20% of the net cultivated area.

Looking at the distribution by size of holding we find that it ranged between 20.1% of net cultivated area in the 7.4-10.0 acre size class to 4.5% in the above 124 acre size class - quite a wide range. However, if we exclude the very large holdings above 50 acres there was very little variation in the distribution, with between 17.5% in the under 1.23 acre size class to 20.1% in the 7.4-10.0 acre size class, and then another slight fall to 17.7% in the 25.0-49.4 acre size class. It is quite difficult to draw conclusions from such a flat distribution. The four size classes which made up the group of holdings between 4.9 and 25 acres, (i.e. the rich peasantry) were within 0.7 of a percentage point of each other in terms of the amount of area irrigated by this source. Between them they comprised just over 44% of holdings and controlled more than 60% of the total area, so in absolute terms they commanded a larger area of canal-irrigated area than any other group - about 15%. By contrast, despite the fact that poor peasant holdings up to 2½ acres comprised about a fifth of the total they only operated less than 9% of the land, so that in fact only about 1.5% of total canal irrigated area was under the control of

this class. Looked at in this way, the data takes on more meaning, for it leads us to ask the following questions:-

1. Did the rich peasantry succeed in concentrating the canal irrigated land in their own hands over a period by deliberate purchases and/or by skilfully manipulating the operation of the Consolidation of Holdings Act to their own advantage? OR:

2. Did they control the actual distribution of the canal water to their own advantage as has been shown by many commentators to be the prerogative of the powerful?

In view of the historically strong position in the countryside enjoyed by the Jat farmers who predominantly comprise the rich peasantry of the region it is more than likely that both factors were at work. The poor peasants at the bottom of the distribution were therefore left not only with the worst land in terms of its proximity to and ease of irrigation by canals, but were also subject to the control by richer and more powerful peasants of what canal water was available. This could take the form of any number of constraints, such as excessive charges by corrupt officials, inconvenient timing - for example, only being allocated water in the middle of the night, and inadequate duration so that rather than percolating through the soil the water was insufficient and stayed on top, evaporated - hard-baking the land in the sun - and in fact could do more harm than good. [*Whitcombe, 1972: 76*]

At the top end of the distribution - above 50 acres - the smaller percentage of area irrigated by canals was compensated for by the much larger absolute areas involved - so that in fact these groups had more control over canal irrigation than is immediately apparent from the percentages. However, in view of the fact that they comprised only 0.17% of holdings and controlled only 1.9% of the land their overall importance in the distribution was very small.

The 2.5-4.9 acre size class, the middle peasantry, irrigated 19%

of its area by canals, which is not far from unity with its representation in the distribution as a whole - 19.7% of holdings and 20.5% of area. Put another way, one could say that it is getting just about its "fair share" of canal irrigation, neither more nor less than one would expect if resources were equally distributed. The significance of this will become apparent as the analysis proceeds.

B **WELLS**

Wells are the traditional source of groundwater irrigation in Northern India. They can be either *kutcha* - simple dug wells which have a relatively short life span and are liable to cave in, or *pucca* - masonry wells with a far longer life span, and which in suitable circumstances can be equipped with powered pump sets, although the animal-operated Persian wheel or *rahat* is by far the most frequent lift system employed. [*Dhawan, 1978: 18*] Unfortunately this data does not distinguish between kutcha and pucca wells so we have no way of assessing the real quality of this irrigation.

It is interesting that this form of irrigation was much less important than either canals or tubewells, and was overwhelmingly concentrated in the bottom half of the distribution. It covered between 11.1% and 11.6% of area for every size class up to 10 acres. Thereafter there was a steady decline so that in the very largest size class it covered only 0.6% of the land area. Of course, because of the decline of net area irrigated with declining size class wells were relatively more important as a source of irrigation to the smaller holdings. This is not surprising in view of earlier comments about the greater difficulty small landholders may have had in obtaining water from canals. Wells have the advantage of being relatively cheap to construct, particularly in the case of simple dug wells, for which the main input is labour - and of which there was an abundance

in the smaller size classes.

C TUBEWELLS

Tubewells were the most important source of irrigation in the region, irrigating 23.1% of the net cultivated area out of a total of 53.9%. The percentage of area irrigated by this source steadily increased with size class, from 17.9% of area in the less than 1.23 acre size group to 28.1% of area in the 25-49 acre size class. Thereafter there was a steady decline to 18.4% of area irrigated by tubewells in the above 124 acre size class. (See Table 6, p. 241) Tubewell irrigation was the most important source of irrigation for every size class, and particularly so for the larger holdings above 25 acres where it greatly exceeds the two principal alternatives - canal and dug-well irrigation. Why should this be? The principal advantage of tubewell irrigation is that it provides an assured source of water under the direct control of the cultivator as and when he wants it. This is not always the case for canal water which is usually allocated on a rota system. But a tubewell is also expensive. Dhawan estimated that the capital cost of a 5 hp electric tubewell was 11,000 Rs. at the beginning of the 1970's (excluding the cost of an electricity connection) and the annual operational cost to be Rs. 2,600 for a water output of 12,000 gallons per hour. [*Dhawan, 1978: 61*] Obviously, to afford this type of initial capital expenditure required either very considerable financial resources or access to cheap forms of credit. The way the credit institutions work with their stress on land as security favours rich peasants and in particular those among them with larger holdings. [*Lipton, 1976: 545*] However, it is maintained by Dhawan that by far the largest proportion of tubewells in Western UP - 57% - were financed from own resources, and only 35.3% from institutional agencies.

[*Dhawan, 1978:28*] The extensive size of these holdings meant that these rich peasant farmers could produce a large agricultural surplus, and thus be in a good position to finance investment in tubewells.

But it was not only the very large farmers among the class of rich peasants who were apparently able to invest in tubewell irrigation. The size classes with between 7.4 and 25 acres irrigated between 22.2% and 27.4% of their land from this source. While the advantages for them were no less than for the bigger farmers the very large expenditure involved raises many interesting questions. If we assume that own resources were used as well as institutional credit, then the question is how did these farmers manage to generate such a large amount of investible resources? Firstly, we must not ignore the possibility of remittances from relatives in the cities and abroad as one source of finance. But of most interest to us were the sources of finance generated from within agriculture itself. Although we will look at this in much more detail in the next chapter we can make some suggestions based on what we know already. Bearing in mind that these holdings were of economically viable sizes, their considerable control over canal irrigation must have been an important enabling factor allowing them to take advantage of the new high-yielding varieties of wheat and package of practices introduced in the mid-1960's. Indeed, in its initial phases the high yielding varieties programme was specifically directed towards farmers who already had assured irrigation. With the increased productivity and output generated by the new seeds they were in a position to accumulate funds and thus to reinvest some of their surplus back into agriculture. Tubewell irrigation has many advantages over canal irrigation for the cultivator of high-yielding varieties. In particular these varieties are highly sensitive to the timeliness and

quantitites of water and fertiliser inputs. Tubewell irrigation allows the cultivator to have direct control over water and fertiliser application and to regulate their application to a level of precision which could never be achieved with a public source of irrigation such as a canal. Tubewell irrigation is therefore an important factor in maximising the yield of high yielding varieties of wheat, and a profit-oriented producer would have seen it as a worthwhile investment despite the initial high costs. Evidence that this was the case is provided by the fact that it seems that rather than extending the net irrigated area in Western UP, the main impact of tubewell irrigation was to substitute for canal irrigation. [*Dhawan, 1978:17*] The productivity advantages bestowed by sowing high yielding varieties of wheat in the Western Region will be considered in detail in Chapter 6.

We are still left to consider the classes below 5 acres. The two size groups below 2.5 acres, the poor peasantry, irrigated respectively 17.9% and 19.3% of their land by tubewell. Unfortunately we have no way of knowing the source of this tubewell irrigation, i.e. was it water which was bought from larger farmers, or from public tubewells? In view of the very high capital costs involved, on an a priori basis it would seem unlikely that many cultivators in these size classes would own their own tubewell. Furthermore, the size of the holdings was too small to make such an investment economic. [*Dhawan, 1978:38*]

This size class between 2.5 and 4.9 acres, the middle peasantry, irrigated 20.6% of its land by tubewells. As in the case of canals this is just about at unity with the share of this size class in the distribution of holdings and land, and is exactly what we would expect if tubewell irrigated land was equally distributed. This repeated pattern makes this size class, which we have identified with the

middle peasantry, very interesting, as it seems to mark a watershed between the two groups at the bottom of the distribution who have less than their "fair share" of land and irrigation facilities and those size classes above 5 acres who have more than their "fair share".

2.2. THE EASTERN REGION

In Table 7 below we present the sourcewise area irrigated by size class of holding for the Eastern Region of UP. The first point we need to make is that we are dealing with a smaller percentage of irrigated area in the Eastern Region - 39.8% compared to 53.9% in the Western Region.

Table 7
Sourcewise Area Irrigated by Size Class of Holding in 1970-71

Eastern Region

Size Class in acres	Percentage Area Irrigated By					Total Net Irrigated Area
	Canals	Tanks	Wells	Tubewells	Other	
Below 1.23	7.2	3.3	16.6	17.4	3.8	48.2
1.23-2.5	7.1	3.3	15.0	16.4	3.8	45.6
2.5-4.9	7.1	3.3	13.7	15.2	3.6	43.0
4.9-7.4	7.0	3.0	12.3	14.8	3.6	40.7
7.4-10.0	7.3	2.6	11.0	14.5	3.2	38.7
10.0-12.4	7.1	2.7	10.2	13.9	3.0	37.0
12.4-25.0	7.4	2.1	8.2	12.2	2.8	32.8
25.0-49.4	7.5	1.7	5.3	9.8	2.5	26.8
49.4-74.0	6.7	1.4	2.5	6.75	2.9	20.25
74.0-99.0	7.2	0.9	1.8	4.5	1.8	16.2
99.0-124.0	4.9	0.7	1.2	5.0	2.5	14.4
Above 124	2.8	0.5	0.3	4.2	1.7	9.5
Total	7.1	2.8	12.0	14.5	3.4	39.8

Source: *Agricultural Census in UP 1970-71, Table IV: pp. 145*

A CANALS

Taking canals first, only 6.3% of the net cultivated area was irrigated from this source. This was a much lower figure than for the Western Region where 19.0% of the net cultivated area was irrigated. We have considered at some length in Chapter 3 the lack of participation of the Eastern Region in the canal expansion of the

19th Century. We are seeing in these figures the result of this historically lop-sided development policy of the British.

Looking at the distribution of canal irrigation by size of holding it is interesting that up to 100 acres there is very little difference between the size groups with a range of between 6.7% of area in the 49.4-74.0 acre size class to 7.4% of area in the 12.4-25 acre size class. The two largest size classes irrigated respectively 4.9% and 2.8% of their net cultivated area by canal. Overall, therefore, the distribution of canal irrigation by size class was even flatter in the Eastern Region than it was in the West. But as in the case of the Western Region, the position alters somewhat if we consider the amount of canal irrigated area actually controlled by each size class. For convenience we will divide up the distribution at the 2½ acre size class, the 5 acre size class and the 50 acre size class. With more than 35% of total cultivating households (according to the NSS) by far the majority of the landholdings in the region are concentrated in the under 2½ acre size classes. This was the class we defined as the very poor peasantry in Chapter 4. They controlled just over a quarter of the net cultivated area, so in effect, the amount of canal-irrigated land under their control came to less then 2% of the total net cultivated area in the region. Bearing in mind that 35% of holdings shared in this total, the amount of canal-irrigated land controlled by any one of these holdings was either very small indeed or was enjoyed by only a small proportion of them. In view of the greater reliance on cultivation alone for a livelihood in the East, these minute holdings had to support a greater population with fewer resources; they were truly very poor peasants in terms of their control over the means of production.

Let us now look at the other end of the distribution - the 0.7%

of holdings above 74 acres who controlled 3.3% of the land. Given their large size of holdings we would expect this small group to be the remaining vestige of the old pre-Zamindari Abolition landlord class. Irrigating between 7.2% and 2.8% of their land by canal, the share of these holdings in the actual amount of canal irrigated land available was minute in total. However, in view of their large holding sizes the absolute amount of canal irrigated land controlled by any one holding exceeded that for any other size group. If we compare just the three groups above 74 acres in the two regions then we get a simple average of 6.2% of area irrigated by canal in the Western Region, compared to 5.0% in the Eastern Region. The situation in the East compared very favourably when we bear in mind the very different totals of canal irrigated area in the two regions, and even more favourably when we remember the larger absolute amount of land involved in the Eastern Region. Despite the very much smaller total of canal water available in the East, therefore, the largest landholders were doing almost as well as their Western cohorts, which indicates that they were capable of exerting a powerful control over this particular resource. Inevitably, we would expect this to reflect their political, social and economic power in the region. However, we must remember that they were numerically insignificant in the distribution as a whole.

Of more interest to us in numerical terms, however, is the 15.7% of cultivated holdings between 5 and 50 acres who between them controlled 29% of the net cultivated area. These included a minority of middle peasantry, but mainly comprised of the rich peasant/landlord class. With between 7% and 7.5% of their land irrigated by canal, that still only represents about 2.5% of the total net cultivated area in the region, whereas in the Western Region the

same size classes irrigate by canal about 12% of the total net cultivated area of the region. Looked at in this way the rich peasantry of the Eastern Region were much worse off than their Western cohorts in terms of this important productive resource.

Let us now look at the poor peasantry with holdings between 2.5 and 4.9 acres who in the Eastern Region comprised 13.9% of the holdings and 21.75% of the land. They irrigated 7.1% of their area by canals - which was about 1.5% of the total net cultivated area in the region - this compares to about 3% for the same size group in the Western Region, where we classified them as middle peasants.

What conclusions can we draw from this examination of canal irrigation in Eastern UP? Firstly, we must bear in mind that the relative shares of different classes in the available canal irrigation was affected to a very large degree by the distribution of holdings by size class. For instance, there were more very poor peasant holdings below 2.5 acres and landlord holdings above 50 acres in the Eastern Region than there were in the West, and consequently there were fewer holdings in the 2.5-50 acre size classes in the Eastern Region. It is therefore not too surprising to find that in terms of its relative share in the total of canal irrigation for the region, the 5-50 acre size class, should come off much worse than its cohort in the West, and the above 50 acre group rather better. Even given the difference in landholding distribution between the two regions, the intermediate-sized rich peasant holdings in the Eastern Region were still relatively worse off in respect of canal irrigation compared to their cohorts in the West, than any other group. This was particularly the case for the rich peasant/landlord class with holdings between 10 and 25 acres in Eastern UP. It is apparent from a simple comparison of statistics in Tables 6 and 7 - that rich peasant/landlords in the

Eastern Region irrigated an average of about 7% of their net cultivated area by canal compared to an average of about 20% for the Western Region. This is the most significant point concerning this data on canal irrigation. We have already spoken of the importance of canal irrigation as a factor enabling a cultivator to take advantage of hyv's with a minimum of intitial expense. The fact that the rich peasant farmers of Eastern UP were relatively deprived of this important adjunct to land, insofar as it enhanced its fertility, inhibited their capacity to produce a surplus in production. They were therefore at a considerable disadvantage in terms of their intitial resource position compared to their Western cohorts. Consequently, they were less favourably placed to take advantage of the water-sensitive high yielding varieties of seeds and the rather expensive package of associate practices.

B **WELLS**

A very significant difference between the regions was the much greater importance of traditional well irrigation in Eastern UP than in the West. Although the totals were quite similar, with wells irrigating 10.4% of net cultivated area in Western UP and 12% in Eastern UP, there was a very considerable disparity if we look at the relative importance of this irrigation source in the totals for each region, as we see from the table below.

Table 8

Percentage of Each Region's Irrigation Contributed by Source

Region	Canals %	Tanks %	Wells %	Tubewells %	Other %	Total %
Western	35.2	0.7	19.3	42.9	1.9	100.0
Eastern	17.9	7.1	30.2	36.3	8.5	100.0

Wells contributed only 19.3% of irrigation in the Western Region, but

30.2% in the Eastern Region - second only to tubewell irrigation. One of the reasons for this was quite simply the more limited contribution of canals in the Eastern Region, which we discussed above.

Dhawan maintains that dug-well irrigation constituted the principal source of irrigation in Eastern UP until the tubewell spurt of the early 1970's. The importance of dug-wells had remained fairly stable throughout the preceding twenty years, with the number in 1972 only marginally above the figure for 1951. However, says Dhawan, most of the wells were now "*pucca*" (masonry) some with boring at the bottom. He considers that "*kutcha*" wells which at one time were of considerable importance in the region were, by 1972, no longer favoured by the farmers because of their short life (one to two years) enhanced risk of caving in if the depth is increased with a view to making water supply less vulnerable to drought when water table recedes; and their inability to meet the exacting water needs of hyv crops, especially during rabi and zaid seasons. [*Dhawan, 1978:17*]

A Census of groundwater irrigation was carried out by the Planning Research and Action Institute in 1972. This found that in Eastern UP only 4% of masonry wells were equipped with a powered pumpset - of which three-quarters were diesel operated. Secondly, human-operated water-lifts exceeded animal-operated water lifts. In contrast to Western UP where the "*rahat*" (Persian wheel) was the most common animal operated water lift, the human-operated "*charsa*" was the most common water-lift in Eastern UP. Dhawan tells us that in 1975 the capital cost of a charsa came to only Rs. 150 as compared to Rs. 2,000 for a Persian wheel, and the cost of a "*dhenkali* or "*charsa*" was relatively much smaller than that of a persian wheel. [*Dhawan, 1978:19*]

It is therefore not surprising that when we look at well irrigation by size of holding it was heavily concentrated at the bottom end of the distribution, among the very poor peasantry who could afford nothing better, with respectively 16.6% and 15.0% of total area irrigated from this source in the two size classes up to 2.5 acres. However, it was still quite a significant source of irrigation for all size classes up to 25 acres contributing between 13.7% and 8.2% of irrigated area, declining in importance as size of holding increased. Above 25 acres it tapered off quite steeply with 5.3% of area in the 25-50 acre group, and only 0.3% in the above 124 acre group.

C **TUBEWELLS**

Wells cannot really be considered in isolation from tubewells as they are a direct substitute. In Eastern UP they irrigated 14.5% of the net cultivated area, which was considerably less than the 23.1% in the Western Region. However, this still leaves tubewells as the single most important source of irrigation in the Region, contributing 36.3% of the total. Unlike the Western Region where private tubewells were the norm, public tubewells formed a much larger percentage of the total. In 1968-69 out of a total of 11,336 tubewells for the Eastern Region as a whole, 3,190 or 28% were owned by the State. This compared with a total of 72,448 tubewells in Western UP of which only 2,355, or 3% were state owned. [*Dhawan, 1978, 30*] This may well help to explain the relatively large proportion of land irrigated by tubewells for the two size classes comprising the very poor peasantry with holdings below 2.5 acres - respectively 17.4% and 16.4%. As will be shown below, these small-holdings were considerably below the minimum size necessary to make a tubewell worthwhile, even if they could raise the finance - which was

unlikely.

Up until the mid-1960's when a sharp downward trend in the minimum economic size of holding necessary for a tubewell investment occurred, public tubewells were more important than private tubewells in the region. Dhawan maintains that "as a result of the numerous changes in the objective conditions" between 1950 and 1975 in Eastern UP, the minimum size of holding for investment in an individual tubewell of 3 h.p. capacity is estimated to have diminished as follows:-

Table 9
Change in Minimum Efficient Size for Tube-Well Investment in Eastern UP 1950-1975

	Electric Tubewell	Diesel Tubewell
1950-60	61-100 acres	91-141 acres
1965	27 acres	39 acres
1970	6.4 acres	9.24 acres
1975	4.6 acres	5.5 acres

Source: *B.D. Dhawan, Grountwater Irrigation in East UP, p. 39*

He does not specify in detail what he means by "numerous changes in objective conditions", but there are two ways we can look at this. First in terms of alterations in the basic economic infrastructure of the region, in particular consolidation of holdings and rural electrification, and secondly in terms of the possible profitability of tubewell investment when combined with high-yielding varieties of seeds and fertilisers.

If we accept Dhawan's analysis, then in the period in which we are interested an electric tubewell became a practical investment for holdings say, of 5 acres, and a diesel tubewell say, above 7.5 acres. However, this is to reckon without the constraints placed upon such an

investment by the non-availability of finance and the built-in inhibition imposed by the relations of production implicit in a semi-feudal mode of production.

Let us take the class of rich peasants/landlords with holdings between 10 and 50 acres. On the basis of the NSS data they comprised about 3.2% of the total population, but operated nearly 23% of the land. They irrigated between 13.9% and 9.3% of their land by tubewell in 1970-71, compared to between 24.4% and 28.1% by the same size classes of rich peasants in the West. This is a very considerable difference, and furthermore, whereas in the West the percentage increased with size of holding, in the East it decreased. Why should the performance of this viably-sized group of rich peasant/landlord holdings in terms of this important productive investment, (especially in view of the very much lower availability of canal water), be so much below that for their cohorts in the West?

Let us look at the infrastructural conditions first. We mentioned consolidation of holdings above. Unfortunately we have no regionwise data for either fragmentation or the extent of consolidation. We do know that whereas consolidation began in Western UP in 1955 it did not commence in Eastern UP until the early 1960's. Furthermore, whereas holdings were consolidated into only one single unit in Western UP, three separate parcels were allowed in Eastern UP. This would have an effect upon the potential profitability of a tubewell investment, for unless a landholder was permitted to build a water channel across his neighbours' plots, the actual land available for tubewell irrigation is restricted by the size of the largest fragment, and then if:

> ".....their demand is just equal to the rated capacity of a dug-cum- bore well fitted with a traditional water-lift, large farmers . . . may not ignore traditional modes vis-a-vis tubewell

irrigation whose unit cost is very sensitive to the level of utilisation of a tubewell." [*Dhawan, 1978:68*]

The other major infrastructural item is rural electrification. But this was far from complete. Looking ahead to 1976 only one-fifth of Eastern UP villages were electrified, and Dhawan quotes cases of a woeful lack of co-ordination between extension and electrification authorities, resulting in tubewells being bored and pumpsets installed only to have to wait years for connection to an electricity supply. [*Dhawan, 1980: A115*] The result is that electrification was only available in some villages. Even in villages with electricity the supply was often erratic and sometimes provided at night even in winter. [*Singh, 1976: 153*]

If a viably-sized rich peasant farmer was lucky enough to live in a village with electricity, to have his land in contiguous plots, and to have access to the hyv package of inputs, then theoretically a tubewell was be a good investment for him. According to Dhawan:

> the ex ante rate of return on a 3 hp tubewell in the post-hyv period is much higher than in the pre-hyv period for all farm sizes. For a 15 acre farm in Eastern UP is was about 112%, for an electric tubewell in 1970. Even a farmer with a 10 acre holding could realise a rate of return of the order of 69%. Though the corresponding rates of return for a diesel tubewell are somewhat lower, there is no doubt about the private profitability of an investment in a private tubewell for medium and larger farmers in Eastern UP . . . especially if the tubewell can be run very near its rated capacity."[*Dhawan, 1978:68-69*]

However, even if this was the case, a tubewell was still a very expensive initial investment. Dhawan calculates that the capital cost of a 5 hp electric tubewell (cavity type) came to Rs. 11,000 in 1975/76. This excluded the payment to the electricity authority for connection to the mains - about Rs. 3,700 for a distance of 300 metres, raising the total to Rs. 14,700. The cost of a 5 hp diesel tubewell (cavity type) came to Rs. 14,000. This compared to Rs. 4,200 for a dug well with "*charsa*", and Rs. 5,700 for a dugwell with

"*rahat*". [*Dhawan, 1978:61*]

Not only must a farmer have seen a clear benefit of tubewell irrigation over traditional dug well irrigation before he undertook such a relatively expensive investment, but he must also have been in a position to raise the capital. This could have either come from his own resources or from credit institutions. Data for 1972 shows that in contrast to Western UP where self-finance was the most important source of finance for tubewell construction (providing 57% of the total), this was not the case in Eastern UP where farmers own resources provided only 34% of the total. In Eastern UP government (*taccavi*) loans were the most important single source of finance for tubewells, contributing 35.3% of the total, compared to only 4.8% in the Western Region. [*Singh, 1976: 146*] In view of the way these loans were administered, with land as security, they were likely to be of most benefit to the larger farmers.

For those who had to finance their tubewells from own resources there were two possibilities, either they were generating a surplus within the agricultural process itself, or they were deriving the finance from off-farm sources. In a study of some traditional and modernised villages of Jaunpur undertaken by Shrinath Singh in the early 1970s, it was found that in the modernised villages electrification was the key infrastructural factor marking out modernised from traditional villages. This difference, he says, set in motion a whole chain of reactions which caused these villages to take the first steps towards modernisation. Once electric power was made available those farmers who had income from outside sources used it to create their own irrigation sources. He considers that this outside income played a crucial role in the process of development, as nearly 46% of the finances for the installation of irrigation sources

in the modernised villages came from the earnings of those living outside the village, whereas government and co-op loans accounted for only 26% of total expenditure. [*Singh, 1976: 146*]

Even if the remaining 28% were capable of financing tubewell investment from the surplus generated within agriculture it is interesting that as many as 72% who clearly wished to invest were not generating a sufficiently large surplus from agriculture alone to allow them to do so. This is in complete contrast to the Western Region where it appears that self-finance generated within agriculture itself is the most important source of capital for investment in tubewells.

This is a most important point, for if a similar incapacity to generate investment resources from within agriculture was repeated throughout Eastern UP, the extent to which capital accumulation could take place would be severely inhibited. This had implications for the degree to which agricultural productivity and output could be increased in the region, and given the cumulative process of growth taking place in the agriculture of the Western Region would be likely to lead to a widening of the gap between the overall level of development in the two regions.

The smaller the holding the more likely there would be an insufficiency of investible resources. However, one would not think that this was the case for large landholders. Yet if we look at the top section of the distribution in the Eastern Region we find the lowest range of area irrigated by tubewell of any part of the distribution ranging between 6.75% for the 50-74 acre size class and 4.2% of area for the above 124 acre size class. Even bearing in mind the extensive size of these holdings, this was very much less than for

the corresponding group of holdings in Western UP, where the area irrigated by tubewell ranged between 25.7% and 18.4% of area.

Certainly, lack of electricity must have played a part for some of these holdings. Another factor may be that they were too large to manage effectively as they were, let alone with the more intensive cultivation needed to make a tubewell a cost-effective proposition. A third factor, as we mentioned earlier, may simply be that given that these large landholders were able to obtain a good living from their holdings as they were, they felt no incentive to invest beyond the minimum necessary, preferring instead to spend their surplus in conspicuous consumption. This ties in with Bhaduri's theory - were they perhaps reluctant to invest in irrigation because it would raise productivity and thereby the incomes of their tenants - ultimately freeing them from debt bondage? Whatever the reason, their low overall represention in both the holding and area distribution made their lack of investment in tubewells much less important to the regional economy as a whole than that of the important holding group between 10 and 50 acres. But here we have been careful to define this class as including not just rich peasants, but landlords too, and more likely as a class which exhibits aspects of both classes, combining some self-cultivation with renting out of land, particularly on a share-crop basis and in unrecorded oral tenancies, as demonstrated in Chapter 4. As such the inhibitions presented by semi-feudal production relations may have acted as a powerful barrier to investment and innovation, even where the necessary infrastructure existed.

D TANKS AND OTHER

Before we finish with irrigation there is one more point to make, and that concerns the larger proportion of area irrigated by tanks

(2.8%) and "other" (3.4%) in the region, as compared to the West where both items together amounted to only 1.4% of area. Tanks are liable to dry-up completely in drought conditions, and even in normal circumstances are subject to evaporation, so are not a very effective means of irrigation. "Other" presumably refers to the shallow ditches and holes which are an even less efficient means of irrigation.

There was quite a difference in the quality of irrigation provided by a dug-well, and even more so between a tubewell and a shallow ditch. We use this point to illustrate that on the basis of the data we have examined there is quite a difference not only in the extent, but also in the quality of irrigation between Eastern and Western UP. In particular the predominance of tubewell and canal irrigation in the Western Region gave this region a very big advantage in terms of productive resources over the less well endowed Eastern Region.

CONCLUSIONS

As important as the regionwise differences were the differences in access to irrigation resources enjoyed by different classes in the two regions. Most noteworthy was the much more favourable position of the important class of rich farmers with holdings between 5 and 50 acres in Western UP in both the quantity and quality of irrigation as compared to the class of rich farmers/landlords defined as operating holdings above 10 acres in Eastern UP. We stated at the beginning of the chapter the great importance of irrigation in promoting increased agricultural productivity and growth. Whether or not this takes place has wide-ranging implications for the class structure and the pattern of inequalities thereby engendered. In the Western Region it

is clearly the mid-group of holdings - the rich and proto-capitalist peasants with holdings between 5 and 50 acres who made the biggest investment in tubewells, and in irrigation generally. They were therefore in the best position to reap its benefits in the form of productivity and production gains. The existence of a surplus meant that they were able to plough back resources into agriculture, extending and deepening their investment into still more productivity-raising innovations, such as powered threshers and tractors, in a cumulative process of investment and growth.

From Table 5, it is apparent that these rich peasants in the mid-size classes were already quite considerably better endowed in terms of the quality and quantity of irrigation than the holdings below 5 acres - the poor and middle peasantry. If the cumulative process described took place, it would widen the inequalities between the rich peasantry and the rest of the agricultural population and could polarise the class divisions in the Western Region.

By contrast, in the Eastern Region, the rich peasantry - with holdings between 10 and 50 acres, was by no means so clearly delineated in terms of its control over irrigation resources as its cohorts in the West. In terms of the average absolute amount of land irrigated per holding then it was clearly better off than the middle, poor and very poor peasantry of the region by virtue of its size, but in terms of the percentage of its land involved its land was less intensively irrigated. Compared to the Western Region the rich peasant/landlord class in the Eastern Region was relatively much worse off in terms of productivity enhancing irrigation, particularly the more effective forms of irrigation such as canals and tubewells. The potential for a cumulative polarisation between the rich peasantry and the classes below on the basis described above for the Western Region

was therefore rather more limited in the Eastern Region. Consequently one would also expect that inequalities in income and consumption would be less marked in this region.

PART II

CAPITAL AND LIVESTOCK

The aim of this section is to assess regional capital endowment and to get some idea of the type of productive investment being undertaken by the different classes in each region round about 1970. This will allow us to further refine our analysis of the class structure and will form the foundation on which to base our subsequent examination of the part played by different classes in the actual process of production, i.e. the relations of production. We will then be in a position to fulfil the main aim of the thesis, i.e. to examine the differential patterns of income, consumption and poverty generated in each region.

From the previous section it was quite apparent that in terms of irrigation facilities the Western Region was much better endowed than the Eastern Region. It therefore comes as no surprise to find that this pattern was largely repeated for the more modernised items of capital equipment, as we show in the table below.

Table 10
District-wise numbers of Agricultural Machinery and Implements in UP 1972

	Western Region	Eastern Region
Improved sowing machines	73,190	13,700
Improved threshers	82,984	32,169
Carts	1017,589	317,445
Germ Killers & Sprayers	38,004	5,945
Sugarcane Crushers (powered)	12,185	4,513
Irrigation Pumps (diesel)	103,696	51,746
" " (electric)	59,067	35,189
Tractors (Government)	,721	,261
(private)	3,808	16,441

Source: *Statistical Abstract of UP, 1976-77, Table 4, p. 47*

There is not one item for which the Western Region did not exceed that for the Eastern Region, despite the fact that in 1971 the Western Region had a slightly smaller population (31,314,000) and lower density (381 persons per sq. km.) than the Eastern Region where the population was 33,171,000 and the density was 387 per sq. km. [*Board of Revenue, 1971: 9*]

In the subsequent analysis we shall examine how some of these modern items of capital equipment were distributed by size class, and also the extent to which they were substituted by different groups for more traditional items of equipment.

1. BASIC AGRICULTURAL IMPLEMENTS

We will look first at the basic implements of production in Indian Agriculture, ploughs and harrows. In the table below we give the percentage of households reporting ploughs by size of holding in each region.

Table 11
Percentage of Households Reporting Ploughs by Size Class of Household Operational Holding in the Western and Eastern Region 1971-72

Size class of operational holding	Western Region			Eastern Region		
	Ploughs wooden	Ploughs iron	neither wooden nor iron	Ploughs wooden	Ploughs iron	neither wooden nor iron
	%	%	%	%	%	%
Nil	2,9	1,0	96,9	3,1	0,2	96,7
0,01-0,50	26,8	12,9	79,6	24,6	-	75,4
0,50-1,00	43,0	15,2	57,0	61,6	0,7	37,8
1,00-1,25	81,1	4,6	18,9	77,5	5,8	22,1
1,25-2,50	69,0	27,0	17,1	91,2	6,3	8,4
2,50-5,00	93,4	26,5	2,0	98,0	13,4	2,0
5,00-7,50	92,0	33,2	1,1	100,0	28,0	-
7,50-10,00	90,9	47,6	1,6	100,0	43,9	-
12,50-15,00	100,0	78,2	-	97,9	49,3	-
15,00-20,00	86,6	56,2	2,5	100,0	48,7	-
20,00-25,00	83,0	84,0	-	100,0	74,1	-
25,00-30,00	100,0	83,3	-	100,0	70,3	-
30,00-50,00	100,0	22,4	-	100,0	32,4	-
Above 50,00	-	-	-	100,0	-	-
All Sizes	56,4	20,1	29,6	69,8	9,2	29,9

Source: *National Sample Survey, 1971-72: Tables 11 and 13*

Let us look at the distribution by size class for each region separately, taking the Western Region first. Not surprisingly, in view of its reliance on agricultural labour, the nil operating group possessed a total of only 4 ploughs per 100 households. Thereafter there was a progressive increase in the number of ploughs owned as size of holding increased up to 30 acres. Furthermore, the composition changed steadily in favour of iron ploughs with increasing size class, which is exactly as we might expect in view of the more expensive and superior nature of the iron as opposed to the wooden plough as an implement.

In the Eastern Region the number of iron ploughs per 100 households was quite similar to the number in the West once holdings exceeded 5 acres. Below 5 acres cultivators in the East were on average considerably worse off than their Western cohorts, by size

class, in respect of the distribution of iron ploughs. This is further justification for setting the cut-off point for the poor peasantry in the Eastern Region at the five acre point. This becomes significant when we remember that according to the 26th Round of the National Sample Survey, more than 86% of all holdings in the Eastern Region were of 5 acres or below in size. The shortage of iron ploughs was to some extent made up for by an overall larger number of wooden ploughs among the poor peasantry in Eastern UP, and as important, a much larger number of harrows. The harrow is a hand tool, and unlike a plough does not require to be complemented by animal power, and the question we must ask is whether they were used by some of the very poorest peasants in the East who had neither plough nor bullock? If this was the case, then their use represented a very laborious and labour-intensive type of agriculture. Above the five acre size class, i.e. once we look at the holdings represented by the classes of middle peasantry and rich peasants/landlords the number of wooden ploughs and harrows in the Eastern Region was considerably above the figure for the Western Region for most size classes.

The interesting question consequent upon this data is whether the smaller number of more primitive wooden ploughs and harrows overall in the Western Region was compensated for by a larger number of tractors and other mechanised types of agricultural equipment, a point we shall consider in Part III of this chapter

2. DRAUGHT LIVESTOCK

Before we come on to consider this question we shall look at the distribution of draught animal power in the two regions - the essential complement not only to the plough but for many other types of agricultural operation such as water-lifting and threshing.

Table 12
Working Male Buffaloes and Cattle over 3 Years Old Owned Per 100 Households and Per 100 Hectares, and the Prercentage of Households Without Either in 1971-72

	Western Region					Eastern Region				
Size Class of h'hold operational holding	Buffaloes wkg males per 100 h'holds	Buffaloes wkg males per 100 hecs	Cattle wkg males per 100 h'holds	Cattle wkg males per 100 hecs	% of h'holds without either	Buffaloes wkg males per 100 hecs	Buffaloes wkg males per 100 h'holds	Cattle wkg males per 100 hecs	Cattle wkg males per 100	% of h'holds without either
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Nil	3	356*	4	606	95	1	75*	8	560*	94
0,01-0,50	26	204	22	172	72	-	-	31	273	54
0,50-1,00	43	151	3	98	56	-	-	76	255	45
1,00-1,25	26	58	87	192	33	1	3	941	298	29
1,25-2,50	50	68	76	103	33	6	7	140	190	10
2,50-5,00	38	25	134	89	13	18	6	174	122	4
5,00-7,50	57	23	166	67	5	13	5	205	85	4
7,50-10,00	54	16	192	55	2	3	1	270	78	-
10,00-12,50	33	7	192	43	5	4	1	346	77	-
12,50-15,00	43	8	249	46	-	17	3	350	64	-
15,00-20,00	93	14	289	42	-	29	4	466	67	-
20,00-25,00	67	8	296	34	7	-	-	543	60	-
25,00-30,00	126	11	479	43	-	40	4	541	51	-
30,00-50,00	76	6	326	24	-	-	-	849	58	-
Above 50,00	-	-	-	-	-	-	-	809	39	-
All Sizes	31	25	88	70	44	15	5	123	123	30

* Actual number owned

Source: *National Sample Survey, 1971-72: Tables 8 and 9*

Looking at households first, and taking the overall figures for each region it is apparent that buffaloes accounted for a larger proportion of the total livestock population in Western UP where there was an average of 31 buffaloes to 88 cattle per 100 households, than in the Eastern Region where there was an average of only 15 buffaloes to 123 cattle per 100 households. The smaller total of livestock in the Western Region was offset by the greater strength and efficiency of the buffalo over the bullock. There is some evidence that Uttar Pradesh as a whole was vastly oversupplied with cattle and buffaloes. A study by A.M. Khusro of 126 Indian villages found that the average amount of cultivated land per pair of draught animals worked out at

from seven to eleven acres. [*Khusro, 1973*] According to a paper by D.K. Mishra et al there was a total of nearly 7½ million pairs of bullocks in UP in 1972-73 which worked out at one pair of bullocks for every 5.4 acres which is considerably below Khusro's estimate, and even further below Mishra's own estimate of the optimum amount of land per bullock pair, which emerged as 10.8 acres. [*Mishra, Pandey & Pandey, 1976: 196*]

Mention of optima inevitably leads us straight into the debate on whether India does or does not have a surplus of cattle. We do not wish to become involved in this controversy which has been simmering since the early 1960's, however, it is relevant to our study mention briefly the viewpoints of some of the key protagonists.

On the one hand there is a school of thought represented by Marvin Harris, [*1966*] [*1978*] and to some extent by K.N. Raj [*1969*][1971]who do not consider that India has a "surplus" of cattle. Marvin Harris in particular, who describes himself as a "cultural ecologist" considers that far from the human and bovine populations competing with each other for the produce of the land, their relationship is "symbiotic" with the human population deriving draught power, milk and dung from the cattle population. However, there are few who would support Harris's extreme position that even the large population of very low quality cattle found in India's rural economy is beneficial and fits into an "ecological niche". V.M. Dandekar, [*1969*]in particular, took exception to Harris's model, and in a vitriolic article questioned the assumptions on which he based his hypothesis. K.N. Raj [*1969*][*1971*] took an empirical approach to the problem setting himself to disprove the "widespread assumption about the existence of large surpluses of livestock" in India. He too came in for much criticism from Dandekar who showed that Raj's model failed

to approximate the Indian livestock reality.

V.M. Dandekar considers that the whole issue of the extent to which India has a surplus of cattle cannot be divorced from the quality of those cattle. "'Is there surplus cattle in India'? is a superficial question to ask. The right question is: Are the size, age-sex composition and quality of Indian cattle the most economic in relation to India's resources and need?" [*Dandekar, 1980: 69*] S N. Mishra [*1973*] is another advocate of the view that India possesses "surplus cattle". Taking as his starting point the assumption "that the existing number of working bullocks is the required number" he goes on to find the number of cows for its replacement "given the values of relevant parameters like breeding efficiency, mortality rate of the young stock and average working life etc. The difference between the actual and the required number of cows gives us the relative cow surplus, which turns out to be 19.37 per cent of the existing cow population under the present techno-institutional structure."[*Mishra, 1973: 305*] He also shows that if the "surplus" cows were eliminated total milk output would in fact increase rather than decrease as a result of the better nutrition of the remaining population. "Clearly, there does not seem to be any economic rationality in maintaining this surplus. This should not however imply that the Indian cultivator is irrational. Instead, besides being economically rational, he is religious too. To him the cow is not only economically useful but sacred too. Even when she loses her economic usefulness she retains he sacredness. Therein perhaps lies the reason for the existence of the surplus."[*Mishra, 1973: 306*]

Two important points from this debate have relevance to the situation in Eastern UP. Firstly, we agree with Dandekar and Misra

that in the macro-sense India, and in particular Eastern UP, had in 1971, and indeed still has, a surplus of cattle. Taking the rural economy as a whole, the existence of a large population of not very productive cattle, represents a drain on resources which could be better utilised in supporting a smaller population of more productive beasts. However, as we indicate below the decision of individual cultivators to maintain more cattle than the "optimum" may be a completely rational economic decision on their part, and owe little to the sacredness of the cow.

It is quite clear from Table 9 that in 1971-72 the surplus livestock in UP was heavily concentrated in the Eastern Region of the state, specifically in the very poor peasant class with holdings up to 2.5 acres, who had between 190 and 298 working cattle per 100 hectares of area. There was also a large number of bullocks owned by the poor peasant classes with holdings up to 2.5 acresin the Western Region, but because 62% of holdings were below 2½ acres in the East compared to only 35% below this size in the West the absolute surplus of cattle and bullocks in the East was much greater, as shown in the totals.(1)

Of course, it is all very well for theorists to calculate the theoretical optimum size of holding for efficient utilisation of draught animals, but it does not alter the simple fact that in the Eastern Region in particular a very large proportion of holdings were way below this optimum. A bullock is indivisible, and due to the seasonal nature of agricultural operations is likely to be in demand by everyone at the same time. Given the considerable institutional and social barriers to successful sharing arrangements, the poor and very poor peasant had no alternative but to own his own pair of bullocks despite the heavy drain this places on his resources for feed, fodder and human labour for maintenance. There was also the

fact that without a pair of draught animals to work the land a prospective tenant would find it very difficult to find a landlord prepared to let out land, particularly on a share-crop basis. This is a factor which was of significance in the Eastern Region, where, as we showed in Chapter 4, tenancy is of great importance - particularly to the very poor peasantry with holdings up to 2.5 acres.

It is therefore important to look at the percentage of households in each region who owned neither a buffalo nor a bullock, [columns (6) and (11)]. Overall 44% of households owned no draught animals in the Western UP compared to 30% in the Eastern Region. As we would expect, by far the majority of these households fell in the nil operating groups in each region - respectively 95% of this category in the West and 94% in the East.

Of particular significance was the larger percentage of households in cultivating classes who possessed no draught animals in the Western Region as compared to the East. We can divide these households up at the 2½ acre size group i.e. the poor peasantry in Western UP. These households could be expected to be dependent on a combination of self-cultivation and agricultural labour for their livelihood and it seems reasonable to assume that these were the same households who owned no plough, and could not irrigate their holdings. They were therefore likely to be more dependent on agricultural labour than self-cultivation for their living.

The other point concerning the non-ownership of bullocks concerns the larger percentage of holdings involved in the Western Region in size classes representing the rich peasantry. Five percent of holdings owned no draught animals in the 10-12.5 acre size class and seven percent in the 20-25 acre class. We shall be very interested to see whether these rich peasants substituted tractors for bullocks.

In the Eastern Region a somewhat smaller percentage of households owned no draught animals than in the West, but in view of the larger representation of the poor and very poor peasantry in the Eastern Region than in the West the absolute number of households involved was considerably greater. Given that agricultural labour jobs were much more difficult to come by in the Eastern Region this may well have represented a deeper and more extensive level of poverty than in the West. Certainly the fact, as we have already shown, that harrows were still of importance for these size classes in the Eastern UP leads us towards the conclusion that despite lack of basic capital, very poor peasants in the region were still at this date attempting to derive a subsistence from their plots with the most rudimentary instruments of production, and labour power alone.

Let us look first at the distribution of livestock per 100 households by size class of holding in each region. Taking the Western Region first. The most noticeable point was the fairly random distribution of working male buffaloes by size class. It is not until we reach 15 acres that there was a clear increase in the number of buffaloes. The increase in the number of cattle per 100 households was much more continuous, at least until 30 acres when it declined discretely, as did the figure for buffaloes - perhaps indicating a substitution by tractors. If we look at the figures per 100 hectares, then adding together buffaloes and cattle we find the density heavily concentrated in the smaller size classes, with discrete falls at the 1.25 acre size class, the 2½ acre size class and the 10 acre size class. The most significant point is a bunching in the 10 to 20 acre size classes with a density of between 50 and 55 livestock per 100 hectares. This works out at one pair of draught animals for every 11 and 9 acres respectively, which according to

earlier comments, would imply utilisation of these beasts close to their optimum. This could only be to the benefit of these mid-size cultivators whom we previously categorised as rich peasants. They were deriving the maximum benefit of their animal labour force at the lowest relative cost due to this optimal usage.

There were two size classes - the 20-25 acre group and the 30-50 acre group, who according to this data, did not have sufficient draught animals to reach the optimum. The former had one pair of animals for every 12½ acres and the latter one pair of animals for every 17 acres. This begs the question of whether tractor power was being substituted for animal power among these two classes - a question we will address shortly.

Turning to the Eastern Region, the total number of beasts owned per 100 households exceeded that for the Western Region for most size classes, and particularly in the 10-25 acre size groups and the 30-50 acre size groups. Turning to the number of animals per 100 hectares, there was a discrete fall in total at the 1.25 acre size class, the 2.5 acre size class, i.e. the very poor peasantry, and the 5 acre size class, i.e. the poor peasantry. Thereafter, the figures showed much less variation. It is only on holdings in the middle peasant and rich peasant/landlord classes above 7½ acres that figures of animal density at the lower end of Khusro's optimum were reached, with one pair of animals for every 7.8 acres. It is not until 25 acres that figures approaching the upper optimum limit were achieved. Only for the 50 acre and above group did the figure exceed the optimum. Whether because the land was being cultivated extensively or because of mechanisation we will discover shortly. On the basis of this data, by far the majority of holdings were over-supplied with draught animals if we judge this by the size of holding necessary for

effective utilisation. The reason for this is to be found in the large number of small holdings in the Eastern Region, consequent on the overwhelming predominance of the poor and very poor peasantry in the class structure. This meant that on many holdings animals competed with humans for the land, i.e. fodder crops displaced crops meant for human consumption, and in this respect we can agree with Dandekar that Eastern UP had a surplus of cattle.

3. TRACTORS AND THRESHERS

Table 13
Number of Tractors per 100 Households in Western and Eastern UP in 1971-72

Size Class of h'hold operational holding	Western Region Tractors per 100 h'holds	Eastern Region Tractors per 100 h'holds
Nil	-	-
0.01-0.50	-	-
0.50-1.00	-	-
1.00-1.25	-	-
1.25-2.50	-	-
2.50-5.00	0.26	-
5.00-7.50	-	-
7.50-10.00	-	-
10.00-12.50	2.68	-
12.50-15.00	-	-
15.00-20.00	2.5	-
20.00-25.00	-	5.24
25.00-30.00	-	-
30.00-50.00	21.05	-
Above 50.00	-	-
All Sizes	0.19	0.02

Source: *National Sample Survey, 1971-72: Table 11*

The table above shows the number of tractors owned per 100 households as estimated by the National Sample Survey Organisation. There is some reason to believe that these figures were under-estimates. According to the data from the Annual Abstract of Statistics quoted earlier, the total number of privately owned tractors in the Western Region in 1972 was 16,441, and the total for

the Eastern Region 3,808. Hans Binswanger's figures for Uttar Pradesh as a whole were even higher at a total of 27,600 four-wheeled tractors in 1972, most of which were concentrated in Western UP. [*Binswanger, 1978*] If we aggregate the NSS figures on the basis of the number of households in each size class they amounted to 8,570 for the Western Region and just 1,100 for the Eastern Region for the year 1971-72. The National Sample Survey figures therefore need to be treated with some caution, and are best regarded as estimates of trends.

Bearing this in mind, what do the figures tells us? The most striking point is that if the data is to be believed, then the entire stock of tractors in Eastern UP in 1971-72 was in the hands of the 20-25 acre size class. This seems difficult to believe, and it seems more likely that the figures being so small for tractor ownership on holdings of different size classes, the entire quantity were lumped together for statistical convenience. There was certainly nothing in the data on livestock which would lead us to expect that this particular group were more likely to own tractors than the classes immediately below or immediately above. The point that the figure seems to make more than any other is that tractor ownership was concentrated among larger holdings in the Eastern Region, but not the very largest.

In the Western Region tractor ownership was much more widely-spread, although still lumped in specific size classes, which once again leads us to ask whether there may have been some statistical aggregation at work. A particularly interesting point was the ownership of 0.26 tractors per 100 households by the 2.5-5.0 acre size class. This works out at only one tractor for every 385 households, so the actual percentage of the size class involved was very small,

but it is nevertheless significant that some of the class of peasants we defined as "middle peasants" should have been capable of purchasing a tractor. [*Rao, 1975*]

It is significant that the 10.0-12.5 acre size class and the 15.0-20.0 acre size class had very similar numbers of tractors per 100 households - respectively 2.68 and 2.5, which works out at about one tractor for every 40 households. These two size classes had a density of draught animals of about 1 pair for every 10 or so acres, which was towards the top end of the optimum utilisation range. It is therefore not surprising to find that some at least were beginning to substitute tractor for bullock power in 1971-72.

By far the most frequent occurrence of tractors came in the 30-50 acre size class with more than 21 per hundred households. This works out at one tractor for every 5 households. In view of the fact that we found this size class had only one pair of bullocks for every 15 acres - well below the optimum , it is not at all surprising to find that quite extensive substitution by tractors occurred.

The significant fact about the data for the Western Region is that there was a small number of households in the middle peasant class, who were substituting tractors for bullocks, and a rather larger number in the rich peasant class. This was particularly so of the larger holdings between 30 and 50 acres.

The interesting point concerning tractor ownerhip in the middle-peasant group (2.5-5.0 acres) is that, despite the small number involved, these cultivators should (a) have had sufficient funds to do so, and (b) found it worthwhile. This begs the question of whether these particular tractor-owning households might be more appropriately defined as rich rather than middle peasants, despite their small size of holding.

Kusum Chopra in a study of tractor ownerhip in Punjab found that by far the majority of finance for tractors (73%) was provided out of own funds, and only a small proportion from moneylenders and institutional credit. [*Chopra, 1974: A121*] If this pattern was followed in Western UP, which seems likely, these farmers must either have generated a phenomenal surplus for the size of holding - which seems unlikely in view of the operation of the law of diminishing returns with a fixed resource such as land; have converted unproductive items of saving such as ornaments, gold, etc., into money, or most likely of all, have financed tractor purchase by means of remittances from relatives in the cities and abroad. If the latter was the case there may well have beem a prestige motive to their purchase. If tractors were considered to be economically worthwhile by these relatively small cultivators then we really need to know more about them, in particular whether they differ in any significant way from non-tractor owners in the same size class. Factors such as the extent of irrigation, double cropping and hyv seeds, labour hiring, size of output and productivity, the proportion of marketed surplus, etc. would all be useful in making an assessment of whether this particular small group within the 2.5-5.0 acre class might better be described as rich or capitalist farmers rather than middle peasants, despite their relatively small size of holding.

Tractor ownership is much more explicable for the larger sized rich peasant holdings. Tractors are used mainly for three operations, ploughing, threshing and transport - the same as the bullock. An advantage of the tractor is that it saves time and enables a particular agricultural operation to be completed within a given time limit - before the rains but after the first shower when the soil is soft. An added constraint with high yielding varieties

and double cropping is that it cannot begin until the previous crop has been harvested and threshed. [*Dasgupta, 1977: 100*] The need for timely ploughing was therefore even greater with the new seeds and in this tractors are much more reliable than bullocks which take much longer.

Parthasarthy and Abraham [*1974*] maintain that tractor technology is less expensive for large farmers despite its capital intensive nature, and Rudra, Majid and Talib [*1972*] concluded that without tractors large farmers would be unable to cope with the demands of cultivation. C.H.H. Rao [*1976*] advanced a theory which supports these ideas. He maintains that the increase in the biological cost of energy with the growth of population and increasing pressure on land makes the cost of year round maintenance of bullocks and complementary manpower exceed the cost of purchasing and maintaining a tractor. He shows that population growth both increases the supply of labour as well as generating increased demands for food and other agricultural commodities and, consequently, both food prices and the money value of wages per unit of effective labour energy (if not per unit of labour as such) increases. Bullock fodder competes with other crops for limited land and as the price of fodder increases so does the price of bullocks. Rao further argues that the increased demand for food induces extension of cultivation to marginal, less productive land, requiring harder human and bullock labour per unit of ouput. The introduction of tractors cuts out the cost of fodder and other costs for the year-round maintenance of bullocks which are used for a limited number of days in the year, and also the costs incidental to the complementary labour input; the cost saving and output augmenting effects of tractorisation more than compensate for the costs of buying and maintaining this piece of machinery from the

point of view of large farmers. [*Rao, 1975, 23-32*]

The whole issue of the extent to which the introduction of high yielding varieties and its associated package of practices stimulated farmers to adopt tractors has been taken up by T.J. Byres. [*1981*] In the course of a wide-ranging review of the literature on tractorisation he considers that the data presented by a number of authors points towards an indisputable linkage between the introduction of high yielding varieties and increased use of tractors. He sees a key question in their introduction being the extent to which ". . .it is more profitable for those who can afford to obtain them, to use the mechanical innovations along with the biochemical ones. That will obviously depend upon the impact of these innovations on the production process, the rate of profit, and the capacity to accumulate."[*Byres, 1981: 410-411*]

The new technology with its potential for double-cropping inevitably reinforces the fact that agriculture is based upon a time-bound and seasonally determined set of operations. "The effect of the new seeds, however, is to intensify considerably the seasonal peaks of labour requirement."[*Byres, 1981: 410*] Byres continues "One would expect, if the suggested intensified time constraint exists and if tractors are used in order to release it, to find tractorisation associated with three related results: greater timeliness of operations, increased intensity of cultivation, and higher profitability of tractors than of alternative technology."[*Byres, 1981: 413*] He cites evidance from studies by Binswanger [*1978*], Umakesan [*1971*] and by [*Kahlon*] from which he concludes "that the little evidence we have does not dismiss the possibility of a timeliness effect secured by the use of tractors. On the contrary it tends to support it."[*Byres, 1981: 410*]

Byres repeatedly returns to the importance of the rate of profit in the farmer's decision to purchase or hire a tractor - a point highlighted by both Rao "it is very unlikely that savings will be invested in farm machinery unless the rate of return is reasonably high"[*Rao, 1975: 27*] and Binswanger "surely if farmers invest in tractors they must be privately profitable".[*Binswanger, 1978: 63*] Rao looked at the profitability of tractors by comparing a 50-acre with a 10-acre farm in the Punjab from which he concluded that "it is clearly more profitable to use tractors than bullocks, and secondly that this is not so for smaller farms - the difference deriving from the higher cost of both bullock and wage labour as the scale of operation increases".[*Rao, 1975: 53-67*] quoted by Byres p. 415. This is very interesting and, as we shall show in Chapter 6 on the Economics of Farm Management, fits in well with our own findings on the use and cost of bullock and wage labour on different sized farms in Muzaffarnagur District of Western UP.

Byres conducted his survey of the literature on tractorisation within the context of class formation in the Indian countryside. It is therefore not surprising that he should highlight a point made by Binswanger that "big farmers sometimes invest in tractors and other machines in order to avoid what - in their judgment - are problems of labour management, discipline and supervision, particularly in view of the fact that the high yielding varieties have led to increased labour demand and hence enhanced the bargaining power of labourers in the area where most tractor investment occurred."[*Binswanger, 1978: 75*] He sees this as "a most crucial consideration, which will be central to any assessment of profitability."[*Byres, 1981: 416*] Whether or not Byres is right in elevating this factor to such a central position in the farmer's decision to invest in a tractor is not directly

amenable to testing. That agricultural wages were substantially higher in Western UP during 1970-71 than in the Eastern Region, and furthermore, that in both money and real terms they rose at a substantially faster rate between 1966 and 1971 in the Western Region than in the Eastern Region is indeed the case. (See Chapter 8.) This may indeed, have contributed towards the rapid rate of tractorisation in UP after the introduction of HYV's. Binswanger's survey shows tractors in UP as a whole, of which by far the majority would have been in the Western Region, to have increased from a total of 7,139 in 1961 to 10,139 in 1966, and then a phenomenal increase to 27,600 in 1972, placing UP as a whole at number 3 in terms of rank based on density after Punjab and Haryana.[*Binswanger, 1978: 96*] Because the figures apply to UP they inevitably underestimate the density in the Western Region. We must also constantly bear in mind that in focusing our study round about 1970-71 we are looking at the early stages of the Green Revolution. If we were to look at later dates then it is likely that the trend towards mechanisation in the Western Region would have intensified, and the economic dominance of the rich peasantry increased.

Table 14
The estimated No. of Threshers Per 100 Households in Western and Eastern UP in 1971-72

Size Class of H'hold operational holding	Western Region	Eastern Region
Nil	-	-
0.01-0.50	-	-
0.50-1.00	-	-
1.00-1.25	-	-
1.25-2.50	-	-
2.50-5.00	-	-
5.00-7.50	1.7	-
7.50-10.00	1.7	-
10.00-12.50	3.7	9.8
12.50-15.00	11.1	6.2
15.00-20.00	12.2	5.1
20.00-25.00	19.7	16.0
25.00-30.00	-	9.9
30.00-50.00	18.4	32.4
Above 50.00	-	-
All Sizes	0.8	0.3

Source: *National Sample Survey, 1971-72: Table 11*

The table above shows the number of threshers per 100 households in Western and Eastern UP as calculated by the National Sample Survey Organisation. As in the case of tractors, there is some reason to believe that these figures were underestimates, for if we aggregate the totals on the basis of the number of households in each size class, according to the NSS data the overall number for Western UP works out at 34,482 and for Eastern UP at 18,713 in 1971-72, whereas the figures from the Annual Abstract of Statistics for 1972 work out at 82,984 for the Western Region and 32,169 for the Eastern Rgion. As in the case of tractors we shall therefore treat the table above more as an indicator of trends rather than as wholly accurate.

The first point to make about the figures is that overall, as we have come to expect, the Western Region was rather better endowed than the Eastern Region, with 0.8 threshers per 100 households compared to 0.3 in the East.

The second point is that ownership started at the five acre size class in the Western Region whereas it did not commence until the ten acre size class in the Eastern Region, i.e. the rich peasant class in each region This ties in very well with everything we have said so far concerning the apparent greater control over irrigation resources and the enhanced capacity to generate an agricultural surplus in Western UP than their cohorts in the East. Furthermore, it fits in well with the pattern that has already emerged for tractor ownership. A thresher is not as expensive an item of capital equipment as a tractor, but it does displace both human and animal labour. Whereas tractors cannot be used for many tasks such as weeding and transplanting which are still required to be done by labour, and may even expand the labour opportunities if used to bring under cultivation previously marginal lands or to double crop existing land, a powered thresher largely replaces the human and bullock labour formerly used in the threshing operation. It therefore saves on the cost of bullock maintenance and if harvest labour is scarce and wages high there is yet another incentive to invest in this piece of equipment.

Taking the Western Region first, we can split the distribution up at the 5 acre point, the 12½ acre point and the 20 acre point. Below 5 acres, according to this data, no-one owned a thresher. Presumably, poor and middle peasantry did not find it worthwhile for the size of output they produced, nor were they likely to be able to afford it, and as we have already seen, bullock labour was in plentiful supply, and presumably adequate family labour is equally forthcoming. Between 1.7 and 3.7 threshers were owned per 100 households for the 5-12½ acre size classes, so it was clear that few rich households in the smaller landholding groups found such an

investment worthwhile in terms of its contribution to output and profit. They owned plenty of bullock labour and presumably used family labour where it was available and hired in seasonal labour to augment this where necessary.

There was a discrete increase in the number of threshers in the two size classes between 12½ and 20 acres, with respectively 11.1 and 12.2 per 100 households. These larger land-holding rich peasants were at the top end of optimum bullock utilisation, and furthermore at this point, holdings were becoming too large to manage with family labour alone. The size of output required hired labour for threshing the harvested crop at a time when labour was in general demand and wages were high - a thresher may therefore have been seen as quite an economic investment if it did away with costly hired labour and removed the necessity to maintain an extra pair of bullocks. It also has the advantage of completing the whole operation in less time - which may be important if the farm is geared up for double-cropping.

The 20-25 acre size class and the 30-50 acre size class possessed respectively 19.7 and 18.4 threshers per 100 households. Data was not included for the 25-30 acre group, but there is no reason to believe that this group should be markedly different from those on either side. So overall it seems reasonable to assume that the size classes between 20 and 50 acres possessed approximately one thresher for every five households. This was very similar to the number of tractors possessed by the 30-50 acre group. Furthermore, we showed earlier that the 25-50 acre group had the largest percentage area irrigated by tubewells. Overall, therefore, we can safely say that the class of rich peasants cultivating larger holdings of between 20 and 50 acres in size included some of the most mechanised farms in the region. Size alone must have made mechanisation a necessity for

these bigger farms - otherwise they were very dependent on hired labour, with all the problems of seasonal scarcity and increased wages. Furthermore problems of management of a large hired labour force become overwhelming as size increases. The necessity for mechanisation would have become even more pressing if they attempted to intensify their cultivation into high yielding varieties and the associated package of practices. Dasgupta maintains that in large farms there seems to be a complementarity between different mechanical inputs and hyv's in the sense that the use of tractors, pumpsets and threshers facilitates expansion of output through allocation of a larger output to hyv's. [*Dasgupta, 1977: 96*]

Let us now turn our attention to the Eastern Region. There, ownership of threshers did not start until the 10.0-12.5 acre size class. This is understandable in terms of the great abundance of animal and labour power in the region, and the consequently lower wage rates. It was simply not worthwhile holdings below this size investing in a thresher so long as animal and human labour was so plentiful.

If we turn to the rich peasant holdings above 10 acres that do own threshers, then the data becomes rather more difficult to deal with than was the case for the Western Region. On the face of it, it seems very strange that the 10.0-12.5 acre size class which had only 3.7 threshers per 100 households in the Western Region, should possess 9.8 threshers per 100 households in the Eastern Region. Likewise, the figure of 32.4 for the 30-50 acre group in the Eastern Region compared to 18.4 for the same group in the Western Region seems to require some explaining, in view of the capital scarcity we have already identified in this region.

One explanation is that like is not being compared with like, so that more primitive pieces of equipment were included in the data for the Eastern Region than was the case in the West. There is nothing in our previous data which would lead us to expect these particular size classes to be disproportionately endowed with this piece of capital.

If we work on this hypothesis, then it becomes difficult to compare the distributions between the two regions, but it is still possible to draw some conclusions concerning the distribution of threshers within the region. The main point, which we have already touched upon is that by far the majority of holdings - the 95.7% under 10 acres - did not in fact possess a thresher. So the one point we can make is that the group of holdings between 5 and 10 acres were rather worse off than their cohorts in the Westen Region who possessed such an item of equipment. This parallels the situation for irrigation, ploughs, and tractors which has already been discussed and adds further justification to our decision to select higher landholding cut-off points to demarcate the classes in the East than in the West..

For the size classes above 10 acres, i.e. the rich peasant/landlord class, we are in fact dealing with a very small minority of the distribution. The main point about the distribution of threshers between these holdings was the lack of any definite trend or pattern - which further reinforces our assumption that quite an amorphous collection of implements was included in the data for this region.

4. IRRIGATION PUMPS

The Table below presents the estimated number of irrigation pumps owned per 100 households for 1971-72, as calculated by the National Sample Survey Organization. The data is rather more comprehensive than that for either tractors or threshers. In addition, it is possible to check its accuracy against the data we have already looked at for the amount of area irrigated by tubewells, which was covered in the previous section.

For reasons which will have already become apparent, irrigation pumps are considered by most writers on Indian agriculture to be a more important item of farm mechanisation than either tractors or threshers. Indeed, Dasgupta maintains that the introduction of tractors was facilitated by the prior partial displacement of bullock power in some other uses, particularly the introduction of diesel and electric pumps. [*Dasgupta, 1977: 96*] Looking at the table, we are more interested in the mechanical pumps - the electric and diesel variety, rather than "other" which presumably were Persian wheels.

Table 15
The Estimated Number of Pumps Per 100 Households in Western and Eastern UP in 1971-72

Size Class of h'hold operational	Western Region			Eastern Region		
	Electric	Diesel	Other	Electric	Diesel	Other
Nil	-	-	-	-	-	-
0,01-0,50	-	-	-	-	-	-
0,50-1,00	-	-	2,7	-	-	-
1,00-1,25	-	-	4,6	-	-	1,5
1,25-2,50	-	-	1,3	-	-	1,3
2,50-5,00	1,2	0,3	2,4	-	1,6	4,1
5,00-7,50	0,5	1,6	3,6	-	3,8	5,1
7,50-10,00	1,7	9,0	7,9	4,3	4,3	5,3
10,00-12,50	5,0	3,9	5,9	5,5	12,4	4,1
12,50-15,00	7,6	5,2	18,1	10,9	12,9	-
15,00-20,00	16,3	10,4	9,8	8,7	11,4	2,8
20,00-25,00	43,1	17,0	17,6	16,0	26,7	10,5
25,00-30,00	-	64,3	19,1	20,7	9,9	-
30,00-50,00	35,5	42,1	-	32,4	-	-
Above 50,00	-	-	-	-	-	1,0
All Sizes	1,1	1,3	2,4	0,8	1,2	1,2

Source: *National Sample Survey, 1971-72: Table II*

Taking the Western Region first, the distribution can be conveniently split at the 2½ acre size group, the 7½ acre size group and the 20 acre size group. Below 2½ acres (i.e. among the poor peasantry) no electric or diesel pumps appeared in the data. This fits in well with what we know already about this class. They did not own tractors or threshers, had more wooden than iron ploughs, and were more likely to have their land wholly unirrigated than any other group. Compared to the rest of the distribution they were separated from the means of production and likely to be substantially dependent upon agricultural labour for a livelihood. The group between 2½ and 10 acres included the class of holdings with between 2½ and 5 acres designated the "middle peasantry". Adding together electric and diesel pumps their total came to only 1.5 per hundred households, but as in the case of tractors, this illustrates that a small minority of cultivators in this size class were working at a very high level of capital intensity - and presumably finding it worthwhile to do so.

It might therefore be more accurate to describe this small group as rich peasants..

On this data, the 5-7½ acre group was not much better endowed than the class of middle peasantry below it, with a total of only 2.1 electric and diesel pumps per hundred acres. But overall, for the classes between 7½ and 20 acres there tended to be a continuous increase with size of holding, not only in the number of electric and diesel pumps owned but in the proportion of more efficient electric pumps in the totals. This is very much as we expected given the continuous increase in the proportion of area irrigated by tubewells among the rich peasantry.

Finally we can look at the larger rich peasant holdings between 20 and 50 acres. There was a discrete jump in the overall number of electric and diesel tubewells owned per 100 households at this point. For the three size classes involved it ranged between 51 and 75, which was very high indeed, and it certainly ties in with the fact that the 25-50 acre size class had the largest area irrigated by tubewell of any group - 28.1% according to the Agricultural Census data. Furthermore, it backs up Dasgupta's assertion that bullocks were being substituted by powered pump sets in irrigation, for we also found that these size classes had fewer than the optimum number of bullocks for the size of holding. Along with the larger ownership of tractors and threshers this data on pumps made these cultivators the most capitalised of any in the region, although not necessarily the most intensively so, in view of their size.

Turning to the Eastern Region, we can split up the distribution at the 2½ acre group, the 7½ acre group, and the 15 acre group. For the very poor peasantry below 2½ acres, as we have come to expect, there were no privately owned pump sets. There were a very few

households with holdings below 2½ and 5 acres who owned diesel pump sets - fewer in fact than 2% of the total. This reinforces our contention that these size classes are best defined as poor peasants - advanced capital was clearly very scarce. Between 5 and 7.5 acres nearly 4% of these middle peasant households owned diesel pump sets, which was still a very low number, and no electric pump sets are owned. Between 7½ and 15 acres not only do electric pump sets as well as diesel figure in the statistics, but in each case the figures for the Eastern Region exceeded those for the West. How do we explain this apparently paradoxical trend, especially in view of the much smaller percentage of area irrigated by tubewells among these size groups in the Eastern Region as compared to the West? We must not ignore the possibility that for some reason or other these figures for the East are quite simply over-estimates. Secondly, there is the possibility, as was pointed out earlier, that although the actual pump sets existed they were not in operational order, either because of lack of electricity connection or failure in the supply of diesel fuel. The third point is that although the pumps may have existed, they may not have been used to the maximum capacity because of fragmentation of holdings, resulting in a lower total of area irrigated from this source. Even if we do not believe the actual figures the trend is what is important, and that indicates that some rich peasants in the mid-size groups in Eastern UP were at least taking steps towards private investment in this most important capital resource, although the actual numbers involved, even if the data is wholly accurate, were likely to be quite small in view of the fact that the landholding size classes involved comprised only about 5% of holdings in the region.

The rich peasant holdings between 15 and 50 acres in the Eastern

Region did not possess as many pumps as their cohorts in the West - in the case of the 20-50 acre groups quite considerably fewer, which is much more in line with our expectations on the basis of our earlier data concerning the amount of area irrigated by tubewells and fits in well with the findings of Chapter 4 on the importance of leasing out of land by these larger size-class - predominantly landlord classes - and all that implies in terms of a possible disincentive to investment.

The size classes above 20 acres had more electric and diesel pumps per 100 households than any other groups in the region, which is as we might expect given the large size of their holdings and reinforces our earlier statement that this was the most mechanized group in the region. However, we do not have any data on the distribution of pumps by area, and in view of their large holding size it may well be that the large landholders were surpassed by intermediate sized holdings between 7½ and 15 acres in terms of the actual number of pumps per unit of area - an assumption which is upheld if we look back at Table 6, where it was found that the 25-49.9 acre group only had 9.8% of its area irrigated by tubewells compared to 14.4% in the 7.4-10.0 acre group and 13.9% in the 10.0-12.4 acre group.

PART III

THE VALUE OF ASSETS

In this brief final section we shall use the All India Rural Debt and Investment Survey 1971-72 to examine value of asset holding in monetary terms in the two regions.

1. TOTAL ASSETS

The Table below shows the monetary value of assets in the two regions, classified by both ownerhip and operational holdings, but does not include the value of land owned (which was higher per acre in the Eastern Region than it was in the Western Region).

Table 16
Assets minus Land, Ownership and Operational Holdings in 1971-72

Size of holding	Ownership Holdings		Operational Holdings	
	West Rs.	East Rs.	West Rs.	East Rs.
Nil	1,327	961	2,434	2,388
0.01-0.50	2,517	1,989	2,823	1,797
0.50-1.00	2,393	◊2,525	2,316	2,133
1.00-1.25	2,896	◊3,433	2,939	2,864
1.25-2.50	3,599	3,864	3,360	◊3,580
2.50-5.00	5,781	5,267	5,421	5,204
5.00-7.50	7,902	◊8,304	7,669	◊8,239
7.50-10.00	10,000	◊12,275	10,388	◊12,327
10.00-12.50	12,363	◊13,279	13,255	◊13,982
12.50-15.00	16,055	◊18,750	16,098	◊18,434
15.00-20.00	18,851	◊20,199	19,239	◊19,584
20.00-25.00	24,760	24,697	26,226	◊26,913
25.00-30.00	32,266	24,084	31,387	28,840
30.00-50.00	47,664	26,850	43,972	25,440
50.00 & above	-	55,284	-	55,284

Source: *Reserve Bank of India, 1971-72: Tables 2 and 3*

By far the most significant point to emerge is that for a considerable proportion of households, the value of assets was higher in the Eastern region than in the West. These are marked ◊.

Assets were of higher value in the Eastern Region than in the

West for size classes between 5 and 20 acres irrespective of whether ownership or operational holdings classifications are considered. (In the Eastern Region these only represented 13% of total holdings according to the National Sample Survey, but landholders within these groups actually controlled 38% of the land.) In the table below the value of productive assets alone have been abstracted from the data.

2. PRODUCTIVE ASSETS

Table 14

Value of Productive Assets in Western and Eastern UP, classified by Size Class of Household Operational Holding in 1971-72

	Western Region		Eastern Region		
Land Operated in acres	As % of total assets minus land	Value of productive assets	As % of total assets minus land	Value of productive assets	Percentage difference
	%	Rs.	%	Rs.	%
Nil	19.5	476	11.3	272	75
0.01-0.50	17.8	504	13.5	242	108
0.50-1.00	23.9	553	19.6	438	26
1.00-1.25	33.0	971	18.4	529	84
1.25-2.50	29.1	979	22.2	796	23
2.50-5.00	30.8	1,673	24.8	1,292	29
5.00-7.50	31.8	2,444	24.7	2,051	19
7.50-10 00	34.2	3,553	25.2	3,108	14
10.00-12.50	31.9	4,225	26.9	3,763	12
12.50-15.00	40.4	6,516	27.0	4,976	31
15.00-20.00	39.7	7,640	33.0	6,457	18
20-00-25.00	41.3	10,393	32.8	8,633	20
25.00-30.00	44.3	13,987	37.4	10,794	30
30.00-50.00	29.3	12,905	34.1	8,677	49
50.00 & above	-	-	36.8	20,377	-
All Sizes	30.4	1,542	23.2	1,026	50

Source: *Reserve Bank of India, 1971-72: Tables 2 and 3*

The value of productive assets, ie. implements, machinery and livestock, but excluding owned land, is higher in the Western Region than in the Eastern Region for every size class. Furthermore, the share of productive assets as a percentage of total assets minus land, is also higher in the Western Region for each size class. Overall,

productive assets represent 30.4% of the total in the West, compared to 23.2% in the East. In the table below livestock are excluded, to give just the share of implements and machinery in the total.

Table 18
TheValue of Implements and Machinery in 1971-72

Land Operated in acres	Western Region		Eastern Region		Percentage difference
	As % of total assets minus land	Value of implements and machinery	As % of total assets minus land	Value of implements & machinery	
	%	Rs.	%	Rs.	%
Nil	4.9	120	3.8	92	30
0.01-0.50	2.9	82	2.9	52	58
0.50-1.00	4.0	92	2.4	70	31
1.00-1.25	6.4	190	3.1	89	113
1.25-2.50	6.0	202	3.6	130	55
2.50-5.00	6.9	376	5.7	296	27
5.00-7.50	9.1	699	7.6	627	11
7.50-10.00	12.1	2,262	9.8	1,208	5
10.00-12.50	11.5	1,523	10.5	1,473	3
12.50-15.00	21.8	3,515	13.7	2,531	39
15.00-20.00	19.7	3,784	17.1	3,344	13
20.00-25.00	20.6	5,389	17.3	4,660	16
25.00-30.00	27.0	8,477	22.9	6,610	28
30.00-50.00	17.9	7,862	15.7	3,988	97
50.00 & above	-	-	23.6	13,064	-
Total	9.5	479	6.9	305	57

Source: *Reserve Bank of India, 1971-72: Tables 3 and 4*

Once again, in every instance the value of implements and machinery was higher in the Western Region than in the Eastern Region. Overall, these items comprised 9.5% of total- assets- minus- land in the Western Region compared to just 6.9% in the East. As expected the absolute value tended to increase as size of holding increased. This reinforces the data in Part II of this chapter, which showed that compared to the West, cultivators in the East possessed significantly fewer capital assets than their cohorts in the West

3. NON-PRODUCTIVE ASSETS

In contrast, the figures for durable household assets are shown in Table 19 below.

Table 19
Value of Durable Household Assets

Land Operated in acres	Western Region		Eastern Region		
	As % of total assets minus land	Value of durable h'hold assets	As % of total assets minus land	Value of durable h'hold assets	Percentage difference
	%	Rs.	%	Rs.	%
Nil	13.2	321	14.4	345	7.4
0.01-0.50	11.8	□355	17.3	312	□7.4
0.50-1.00	13.6	314	14.8	316	-
1.00-1.25	12.0	353	15.7	450	27.5
1.25-2.50	11.3	379	16.0	575	51.7
2.50-5.00	11.5	624	16.0	836	34.0
5.00-7.50	10.8	826	14.3	1178	42.5
7.50-10.00	12.0	1,250	19.1	2,355	88.3
10.00-12.50	9.7	1,293	13.2	1,845	42.7
12.50-15.00	7.9	1,268	11.8	2,169	71.0
15.00-20.00	9.1	1,748	14.6	2,854	63.3
20.00-25.00	9.0	2,353	12.3	3,315	40.9
25.00-30.00	4.7	1,482	15.5	4,460	15.5
30.00-50.00	5.0	2,217	13.0	3,319	49.7
50.00 & above	-	-	10.7	5,942	-
Total	11.2	566	15.4	682	20.4

Source: *Reserve Bank of India, 1971-72: Tables 3 and 4*

In this instance the situation for productive assets was reversed with all but the 0.01-1.00 acre groups, marked □ having higher values of durable household assets in the Eastern Region than their Western cohorts. The average for all size classes in the Eastern Region was 20% above that for the Western Region. For the important size classes between 5 and 20 acres the difference ranged between 42% and 71%.

The implication is that in the Eastern Region there was a bias towards the agricultural surplus being used for consumption rather than productive investment. The question then arises of whether this

in itself is evidence of the reluctance of landlords to invest productivity because of the fear of thereby raising agricultural productivity to a point at which tenants would be able to repay debts and therefore free themselves from semi-feudal dependence in the manner postulated by Bhaduri [*1973*][*1983*]; or whether it simply reflected supply constraints with regard to investment goods. In view of the evidence examined so far, and in particular the poor supply of basic infrastructure such as electricity generating capacity, it seems possible that a combination of both factors contributed towards this situation.

CONCLUSIONS

Taken together, the data we have examined on the distribution of irrigated land; of certain items of capital equipment; and of productive and non-productive assets, tell us quite a bit more about the relative resource position and the nature of the class structure in the two regions.

Quite clearly, in terms of every single resource we have looked at, with the exception of wooden ploughs and cattle, the Eastern Region was much worse off than the better-endowed Western Region. This is particularly significant in the case of irrigation - regarded by many as the most important capital resource of all after land. With the exception of pumps for irrigation, which were considerably fewer than in the Western Region, mechanisation (tractors, threshers, etc) in Eastern UP was limited to a very few farms indeed, whereas in the Western Region it was more widely spread. The actual distribution of irrigation and capital resource in the Eastern and Western Regions has told us more about the types of class structure with which we are dealing and has begun pointing the way towards the

particular patterns of inequality likely to have been generated within each region.

The data for the Western Region has reinforced our findings in Chapter 4 that within the under 2½ acre size classes there existed a large class of nominal smallholders in the region who were separated from the means of production and were primarily dependent for their livelihood on agricultural labour. At the same time there also existed within this size class a group of poor peasants who although possessing the basic rudiments of capital necessary for cultivation, were constantly in danger of falling into the agricultural labouring class - perhaps as a result of the death of a buffalo - thus making cultivation impossible, or perhaps via Bhaduri's debt mechanism of land alienation.

We have also clearly identified a group of "middle peasants" in the region with holdings between 2½ and 5 acres, who comprised about a fifth of all agricultural households. This group controlled about a fifth of all the land, and a fifth of the irrigation resources; at unity with their share in the overall distribution of households (i.e. neither more nor less than we would expect if this resource was equally distributed). It is to be expected that within this group were represented all levels of economic wellbeing, from the near destitute to the economically thriving. That the latter was so is apparent from the fact that the class contained a small minority of cultivators owning tractors who might be more appropriately defined as rich peasants despite the very small holding size. However, it is to be expected that by far the majority of this size class was made up of family-operated bullock farms that were just holding their own, i.e. they straddled the middle ground between those poor peasants below 2½ acres who were less well-off than the rest of the

distribution, and those rich peasants above 5 acres who were better off. An interesting point about the 5 to 50 acre size classes in the Western Region was the increasing percentage of tubewell-irrigated area and use of mechanised inputs (tractors, threshers, pump-sets, etc) as size of holding increased. We have already characterised the entire class, which comprised about 20% of the distribution as the "rich peasantry". The evidence in this chapter points towards quite a sizeable class of cultivators who relied extensively on mechanised inputs. Although concentrated more towards the larger size classes, such farmers were to be found in all size groups within the class, and indeed, mechanisation is likely to be more intensive on the intermediate-sized farms. It is to be assumed that the rich and capitalist peasantry were the principal employers of the huge class of agricultural labourers already identified at the bottom end of the distribution.

In the Eastern Region the class structure defined itself rather differently. We already know that about 62% of the cultivating population operated holdings below 2½ acres in size. (See Chapter 4) The data in this chapter characterises this entire class as very sparsely supplied with capital inputs - the predominant source of irrigation was wells, and of cultivation wooden ploughs, harrows and cattle. In Chapter 4 we showed that they were also substantially dependent on tenancy. They were poor peasants in every sense of the word.

Above them, in the 2½-5 acre size class, we identified a class of poor peasants - they comprised 27% of the cultivating population, (see Chapter 4).and differed from the very poor peasantry only in the sense that they operated more land and possessed more of the same rudimentary items of cultivation equipment and livestock than the very

poor peasantry below them, and were therefore more likely to be in a position to meet their subsistence needs.

The size class between 5 and 10 acres in this region we have already characterised as the middle peasantry. They comprised just 9.5% of the cultivating population. (see Chapter 4) Their supply of basic items of productive capital, particularly livestock and iron ploughs, was better than that of the poor peasantry, and some within this class had access to diesel tube-wells. In view of this and their more viable holding size they were therefore more likely to rely wholly upon self-cultivation for a livelihood, and as we showed in Chapter 4, (Table 8) they were less dependent upon tenancy than the poor and very poor peasantry.

All the size classes above 10 acres we designated the rich peasant/landlord class. As we showed in Chapter 4 (page no. 215) they comprised just 4.4% of the cultivating population. They were by no means so clearly differentiated in terms of their control over capital as was the case for the rich peasantry in the Western Region. The biggest factor differentiating them from the classes below was their greater control over land and therefore their ability to lease out that land. As was shown in this chapter, they also had more and better basic capital and livestock. Production techniques in 1971 were likely to be relatively primitive for the rich peasantry of the Eastern Region given the small supply of advanced capital inputs such as tubewells and tractors, and total output and productivity correspondingly lower than in the Western Region. In terms of technique, they were operating on a different and lower production function than the rich peasantry of the Western Region.

Whereas in the West this class was likely to be a net hirer-in of labour, the evidence we have examined so far indicates that leasing-

out of land to the poor and very poor peasantry was the most important form of labour exploitation undertaken by the rich peasantry/landlord class in the Eastern Region. Despite an overall bias towards landlordism within this class as a whole, the evidence we have examined in this chapter does indicate that some rich peasants in the 5-50 acre size classes were beginning to invest in capital, specifically tubewells, and in some cases even in tractors during the early 1970s.. However, the actual percentage of holdings involved was not sufficiently large to have a great deal of impact either upon the growth of the agricultural economy or upon the existing class structure of the region. The basic class division still remained that between an immense class of poor peasant tenantry on the one hand and a class of rich peasant/landlords reliant upon a mixture of self-cultivation and landlordism with usury on the other.

NOTES

(1) For the purpose of the Census an operational holding was defined as "all land which is wholly or partly used for agricultural production and is operated as one technical unit by one person alone or with others without regard to title, legal form, size or location".
Wholly unirrigated holdings were defined as 'all holdings in which no survey number was irrigated during the year".

(2) These figures are from the National Sample Survey, the corresponding figures from the Agricultural Census of 1971, were 59% for the West and 75% for the East. The latter figures probably also contain agricultural labourers, although not designated as such

(3) Rao, C.H. Hanumantha, 1975, *Technological Change and Distribution of Gains*, p. 10, shows that one tractor is needed for about every 25 acres. This further calls into question how these middle peasant holdings between 2½ and 5 acres can possibly find such an investment economic.

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CHAPTER 6

THE FARM IN WESTERN UP

THE ECONOMICS OF FARM MANAGEMENT - MUZAFFARNAGUR DISTRICT

In this chapter and the next we shall be using the Farm Management Studies to examine the nature of production on cultivated holdings of different sizes in the two regions. This entails a detailed look at the farm enterprise as a whole, taking in cropping patterns, inputs, outputs and yields. A key aim of Chapters 6 and 7 is to illustrate the different set of agricultural processes in the two regions, and thus to lay the foundations for showing , in Chapter 8, how they generated different patterns of income and consumption inequalities.

Chapters 6 and 7 are a logical extension of the argument developed so far in that they aim to show how the class of rich farmers already identified in Western UP succeeded not only in producing an output sufficient to meet their needs, but also generated a substantial surplus which was largely reinvested in agriculture itself - and thus the spiral of prosperity continued.. By contrast, in the Eastern Region it is shown how the vast class of marginal cultivators were barely able to achieve subsistence from their plots and found themselves falling further and further into debt. The extent to which the process resembles the theoretical construct hypothesised by Bhaduri will be discussed fully.

The period dealt with - in the case of the Farm Management Studies 1968/69 - together with some data for the early 1970's, relates to the first few years during which the "Green Revolution" package of practices was being introduced on a widescale in India. Since that date much has occurred within this context, and the process has now "worked its way through the system" so that much current literature is concerned with retrospective judgments on the appropriateness of the technology and its success or otherwise in meeting specific objectives. See for instance *[Stewart]* (ed.)

[1987] While it is conceded that it did much to raise the level of foodgrain output in the country and therefore to render India independent of grain inputs, many questions are now being raised concerning its effects on employment and inequality both spatially between regions and between classes. These two latter considerations are clearly of paramount importance within the context of this study, but unfortunately updated data disaggregated by region for UP is not yet accessible. However, there is much within the data below which points quite clearly in the direction developments in the two regions were likely to take, and at the end of the chapter is included an epilogue which seeks to bring the picture up-to-date.

Despite the early date of the data, it is argued that it still has a great deal of relevance, because what it is illustrating is a process rather than a static situation. That process, as has been stressed throughout, is firmly rooted in the interaction of the forces and relations of production of each region. The technological innovations introduced as part of the Green Revolution package of practices raised yields in much the same way as earlier canal irrigation, and the subsequent introduction of tube-wells enhanced the land productivity of the Western Region of UP. In that sense, it must be viewed as part of the continuing process of technological innovation and change. What then becomes interesting is not the nature of the package of practices itself, but the effect its introduction has had upon the relative prosperity and power of different classes in the countryside, and its subsequent effect on the relations of production and poverty.

These two chapters take a different format from that used previously. Due to the non-availability of production data on a region-wise basis the Farm Management Studies of Muzaffarnagur and

Deoria Districts of Western and Eastern UP respectively have been used. Because of the different size classes selected by the researchers for the two districts, they are not directly comparable. A more meaningful picture of the agriculture of each district - and hopefully by implication, of each region, is provided by looking at each district separately, rather than comparing the two directly as has been the pattern previously.

ECONOMICS OF FARM MANAGEMENT - MUZAFFARNAGUR DISTRICT - WESTERN UP

Part I will analyse data collected by the Farm Management Study of Muzaffarnagur District for the year 1968/69. This is a reference period two years earlier than the bulk of our data-base, but is the latest date for which comprehensive data on production, disaggregated by size of holding, is accessible.

One hundred and fifty farms were selected from fifteen villages using a multi-stage stratified random sampling format with the village as primary unit of selection and operational holding as the ultimate unit. The sample area was divided into two zones and the number of villages selected from each zone was proportional to the cultivated area of the zone, and villages were selected with probability proportional to the cultivated area. The operational holdings sample was divided into size classes on the basis of each strata cultivating twenty per cent of the land. A cost-accounting method was adopted in order to estimate the values of inputs and outputs on the selected farms as the experience gained from the 1950's farm management studies had shown this to be a more reliable method of estimating inputs of human and bullock labour than the survey method which had tended to over estimate inputs and underestimate outputs. [*Kahlon & Singh, 1980: 336*]

Part of Meerut Division at the extreme West of the State, Muzaffarnagur District had over 74% of operational area irrigated in 1970/71, compared to 54% for the region as a whole, of which 40.5% was provided by tubewells and 51.6% by canals. This compared to 42.8% of irrigated area provided by tubewells, and 35.2% by canals in the region as a whole. [*Board of Revenue, 1974: 131*] Muzaffarnagur was therefore rather better endowed with irrigation facilities than the region, and was particularly well endowed with canal irrigation. At this date the district had a larger percentage of operational holdings in the 5 to 25 acre size classes than the region - 26.8% compared to 20.3% for the latter. [*Board of Revenue, 1974: 133, 173*] With regard to cropping pattern, total cropped area under wheat was practically identical for Muzaffarnagur and the Western Region, each with about a third. The major difference came in the proportion of area under food crops - just 53.2% in Muzaffarnagur compared to 78.5% for the region as a whole. The reason for this was the very great importance of sugarcane in Muzaffarnagur District where it covered 26.5% of total cropped area compared to just 9% for Western UP. [*Board of Revenue, 1974: 131, 143*] Together these factors show Muzaffarnagur to have been one of the most advanced and prosperous districts of the Western Region round about 1970. This must therefore be borne in mind when drawing wider conclusions from this data.

The table below sets out the size distribution of the 150 farms of the sample examined by the Farm Management Study.

Table 1
Distribution of Sample Households in 1968-69

Size Class (acres)	No	Average Size (acres)
Below 7.1	33	4.8
7.1-11.6	28	9.5
11.6-17.2	30	14.0
17.2-26.3	31	20.0
Above 26.3	28	32.0

Source: *FMS, Muzaffarnagur, Table 3.1*

The class divisions look rather odd because of the practice of dividing the sample into five strata, each cultivating twenty percent of the land, and it is to be regretted that this methodology has resulted in the numerically important class of under 5 acre holdings being represented in the aggregation implicit in the under 7.1 acre size class.

The cropping pattern of Muzaffarnagur District was dominated by wheat and sugarcane, and as demonstrated in the table below, this was reflected in the cropping patterns of the sampled households.

Table 2
Cropping Pattern of Sampled Households, Muzaffarnagur District in 1968-69

Size Class acres	Cropping Intensity	Wheat	Paddy	Maize	Sugarcane	Total Food	Total non food crops
Below 7,1	152	29,7	12,0	5,7	20,6	58,9	41,1
7,1-11,6	143	28,0	9,7	3,6	26,9	50,3	49,8
11,6-17,2	143	23,7	10,7	4,1	26,3	51,3	48,7
17,2-26,3	136	26,0	8,4	3,6	27,5	51,3	48,8
Above 26,3	137	26,4	9,9	4,0	27,0	52,1	47,9

Source: *FMS, Muzaffarnagur, Table 3.10*

Overall there was a great deal of similarity between the cropping patterns by holding size. The main point to be made is that sugarcane covered rather less of the total cropped area for the under 7.1 acre size class than it did for larger cultivators - 20.6% compared to about 27% for the rest of the distribution. A larger

area under kharif food crops, particularly paddy and maize was substituted by this size group. This was reflected in the higher cropping intensity for the smallest size class - 152 compared to an average of 137 for the rest of the distribution.

The three principal crops of wheat, paddy and sugarcane have been selected to examine in detail. Between them they accounted for more than 63% of the total cropped area.

1. WHEAT CULTIVATION

An examination of the cultivation of wheat during this period inevitably means looking at the introduction of the high yielding varieties and package of practices that came to be known as "The Green Revolution". Dwarf Mexican varieties of wheat were first grown experimentally in India in 1963 and released in 1966 for cultivation by farmers in irrigated wheat areas. When the new technology was introduced into the country it immediately placed the traditional wheat growing districts of Western UP at an advantage over others in the State. The wheat-growing districts ofthe Western Region, falling in the major wheat belt of India had the necessary expertise and better developed physical and institutional environment for the cultivation of new varieties. As a result they spread rapidly in the Western Region and so great became the demand for "miracle" seeds that a black-market developed in the intital years when the dwarf wheat seeds were in short supply. [*Ray, 1985: 70*] The necessary production inputs were directed to the areas judged best suited for the new varieties, including Western UP. The import of fertilizers and other inputs needed to support the programme was given priority, and investment in agricultural supply industries encouraged. A producer-oriented price policy was initiated to provide incentives to the

adoption of the new technology. The results of the strategy were disappointing in 1966 and 1967 due to droughts, but by 1968 wheat production reached a record high. [*Ray, 1985: 67*]

Muzaffarnagur is a district particularly well endowed with irrigation facilities, infrastructure and electricity. Irrigation, in particular, has been widely recognized as a crucial factor determining the extent to which the high yielding varieties and associated package of practices were adopted. Privately owned wells, powered by pumpsets or tubewells provided dependable, on-farm water supply, although as was shown in Chapter 5, they were concentrated in the hands of rich peasant cultivators with holdings between 7.5 and 25 acres and gave large and medium farmers a particular advantage with regard to the adoption of hyv's.

Many of the sampled households were therefore particularly well placed to take advantage of the introduction of high yielding varieties of wheat. But more than that, in its initial phases the new technology was targetted very specifically at just such prosperous well-endowed districts and rich farmers as form the bulk of the sample selected by the Farm Management Study of Muzaffarnagur. "This meant that resources were to be allocated in a selective and concentrated fashion to such regions, and within them to such crops, and with respect to them, to such farmers, which promised to make maximum use of resources." This says Ashok Rudra "amounted to pouring funds on regions that were already well-endowed, on crops already profitable and on farmers already rich."[*Rudra, 1987: 27*]

We are fortunate in having available some data by Roshan Singh, [*1977*] the author of the Farm Management Study, which refers to the years 1967/68 and 1971/72. This illustrates well the speed with which high yielding wheat varieties were disseminated among the

sampled farms.

Table 3

Progress of the Introduction of HYV Wheat in Muzaffarnagur District

	Percentage of Adopters		Percentage of Cultivated Land under HYV's	
Size Class	1967/68	1971/72	1967/68	1971/72
Below 7.1	26.7	95.1	18.6	48.3
7.1-11.6	45.7	99.0	12.7	40.7
11.6-17.2	59.4	100.0	13.8	39.5
17.2-26.3	66.7	98.2	11.8	37.5
Above 26.3	66.7	100.0	9.8	40.0
All Farms	44.0	97.5	15.4	41.3

Source: *Roshan Singh: reproduced by Biblap Dasgupta, as Table 71*

In 1967/68, the first year of the hyv programme, less than half the cultivators overall were growing hyv's and there was quite a clear correlation between the rate of adoption and size of holding, with just 26.7% of the under 7.1 acre size class compared to 67.7% for the two size classes above 17.2 acres. This is a phenomenon which has been well documented in the literature. As Rao says: "Although high yielding varieties and fertilizers are size neutral in the sense that they are perfectly divisible and can be used irrespective of the size of farm, they are not resource neutral. Since the large farms have a better command over resources - own as well as borrowed - and since their risk-bearing capacity would be greater than that of the small farmers, one should expect the adoption of biological/chemical techniques to be more extensive among the large farms".[*Rao, 1976: 117*] Access to information concerning the new technology was also a factor. Biblap Dasgupta quotes Sylvia Hale's study of five villages in Uttar Pradesh during 1971/72. "One of the major hypotheses, confirmed by empirical data, was that where certain individuals or groups exercised control over access to channels of information they would be most likely to include their friends and

relatives in such access and to exclude others, particularly hostile groups. Given the hierarchical nature of the village social life in India, and the control of the dominant richer segments of the population over the information flow, she concluded that it was unlikely that first-hand information on the new technology would be accessible by the less privileged population. Most of the information on the new technology is disseminated by block officials who usually prefer to keep contact with the richer groups; persons from lower strata are often ignored by officials."[*Hale, 1973*] Initial adopters reaped the benefit of being the first to grow the varieties: they were able to sell their output for seed which brought premium prices. [*Ray, 1985: 68*] Despite the barriers, by 1972, adoption of hyv's by this sample had become almost universal with 97% of cultivators in the sample engaged in their cultivation overall. Likewise, the percentage of cultivated area under hyv wheat increased from an overall average of 15.4% in 1967/68 to 41.3% in 1971/72. It is interesting that although smaller farmers were slower to adopt hyv's the proportion of their land devoted to them was appreciably larger - 18.6% for the under 7.6 acre size class compared to 9.8% for the over 26 acre group. According to Dasgupta quoting Schluter, uncertainty was the major constraint to adoption among small farmers but once fear was overcome they put in as much effort as possible to hyv cultivation. Furthermore, says Dasgupta, "given the high overhead costs of the decision to adopt - in gathering information about performance and technology of the new varieties and in procuring the necessary inputs and credit - in relation to the size of his holding, a small farmer is likely to be more committed to the new variety in terms of the proportion of acreage under hyv's than the larger farmers."[*Dasgupta, 1977: 232*]

By 1971/72 small farmers still had the largest proportion of their cultivated area under hyv's, 48.3%, but not surprisingly in view of the yield advantages to be gained, farmers with holdings above seven acres were sowing not less than 37.5% of their cultivated area with hyv wheat, with little variation by size class.

In the table below the 1968/69 farm management data is used to illustrates the yield advantages of hyv wheat over local varieties.

Table 4

Yields of local and hyv wheat

Size Class	Local wheat q's per hec	hyv wheat q's per hec	% difference %
0-7.1	25.76	35.78	39
7.1-11.6	24.83	33.99	37
11.6-17.2	23.11	38.48	67
17.2-26.3	22.01	35.44	61
26.3 & Over	23.07	33.67	46
All Farms	23.25	34.82	50

Source: *FMS Muzaffarnagur, Table 5.90*

Overall, for the year 1968/69, hyv wheat showed a 50% improvement in yield over traditional varieties. The biggest yield advantage came in the 11.6 acre to 17.2 acre size class with a 67% improvement, closely followed by the 17.2-26.3 acre size class with a 61% improvement. It has already been shown in Chapter 5 that landholding groups with holdings between 10 and 25 acres had the largest proportion of their land irrigated by tubewells and were best endowed with items of capital equipment and improved implements. In view of their advantageous asset position and access to resources and information, it is to be expected that these farmers would also have been in a preferential situation with respect to the essential biological inputs - seeds, fertilizers, and pesticides, associated with successful cultivation of hyv's. But above all, it was the

availability of adequate and timely irrigation which was likely to be the single most important factor accounting for the variability in hyv yields. [*Dasgupta, 1977: 232*]

It is most interesting that with yield advantages of respectively 39% and 37% it was the two smallest size classes - 0-7.1 acres and 7.1-11.6 acres that obtained the lowest differential benefit as a result of sowing hyv's rather than local wheat. This is largely because they enjoyed the highest yields for local wheat rather than any marked disadvantage, at that date, of their hyv yields compared to other size classes.

The inverse relationship between size of holding and yield per acre found in traditional agriculture is a phenomenon which has been well documented in the literature, and the subject of extensive debate. A.K. Sen [*1962*] was the first to raise the issue, and he put forward two possible explanations. The first concerned the superior quality of land under smaller holdings. As more fertile land provides greater opportunities for earning income, family size will expand at a faster rate. This will lead to a quicker sub-division of more fertile land over time. The second, and widely regarded as the more important explanation, concerns the relatively much higher labour input on smaller holdings. Sen showed that a family farm will employ labour up to the point where its marginal product is zero. As a result, such a farm will produce more and earn less profit than a farm based on wage labour. [*Sen, 1962: 246*]

Krishna Bharadwaj used the Farm Management Surveys for the period 1954-57 for an empirical study of the inverse relationship. On the basis of her research she concluded that "it may be attributed to differences in intensity of cultivation and in cropping patterns - the smaller holdings generally cultivating land more intensively and/or

producing crops of greater value per acre". She emphasised these two factors, especially cropping pattern because of "a recurrent finding that a technical relation between input use (or productivity) and size of holding which appears to find support at the level of total crop production activity, fails to do so for individual crops."[*Bharadwaj, 1974: 84*] Bharadwaj is at pains to point out that decisions by individual farmers on cropping patterns and the intensity of their labour effort must be placed within a socio-economic context which takes account of the differential bargaining position of participants in markets for inputs and outputs which have become "interlocked through price and non-price links". The tenant is not necessarily free to choose his own cropping pattern. "When the landlord combines the functions of a lessor and a merchant, the terms of the lease are not only themselves quite stringent (given his position vis-a-vis the tenants in the lease market) but quite often include stipulations as to what crops the tenant ought to grow and the mode as well as terms of payment of rent."[*Bharadwaj, 1974: 4*] If no direct constraint on crop production exists a tenant with a small holding may still allocate a higher proportion of his area to "more lucrative (ie yielding higher gross revenue per acre) although risky, cash crops, especially if the crops (like jute, groundnuts) require a high labour input per acre and do not require any specific investments in equipment etc. Also it is quite often possible to get credit more easily for cash crop production on the condition of repayment in kind. Land can be more easily leased-in and circulating capital or a part of it borrowed from the landlord on a contract to raise a cash crop on the farm."[*Bharadwaj, 1974: 64*]

Bharadwaj notes that the "very small operators who live in almost perpetual indebtedness may choose to raise as much gross value of

output as possible per acre, even at the cost of having to incur debts to provide circulating capital; they may operate land intensively even to a point where the additional input costs are more than the value of additional output."[*Bharadwaj, 1974: 5*] This is a point which is also taken up by Chattopadhyay M. and Rudra A. [*1976: 114*] who argue that it is misleading "to treat the phenomenon as one of relative efficiency rather than one of distress and affluence".

An alternative explanation for the farm size-output relation, and one that was mentioned by Sen in his original article, is that small farms tend to have better land than large ones. Bhagwati and Chakravarty [*1969*] suggest that, when distress forces small farmers to sell part of their land to larger farmers they sell their less fertile plots; but this presupposes that prices do not adjust for land quality differences, which is unlikely, as within a village the differential fertility of different land plots is likely to be well known.

Yet another explanation for the inverse relationship between farm size and land productivity relates to the difficulty of supervising hired labour. Rao [*1966*] noted that the inverse relationship between farm size and labour use persisted in the higher farm size classes, and among farms operated mainly or entirely with hired labour. This point was also highlighted by Abhijit Sen [*1981*] who presents data from West Bengal in the mid-1960s indicating that the inverse relation is strongest among those farms that operate primarily with hired labour. It is contended that even with supervision, wage labourers can be expected to exert no more than the minimum effort necessary to satisfy the supervisor, and this may well be less than the effort of a small owner working on his or her land.

To some extent all these explanations are inter-related, and it

seems most likely that to varying degrees in different regions they all have some part to play in explaining the inverse relationship. However, Krishna Bharadwaj's stress on the importance of the wider socio-economic context in the production decisions of the poor peasantry with regard to cropping pattern and labour effort, is of particular relevance within the context of this work with its stress on poverty and production relationships.

In the table below yield figures for hyv wheat for the year 1971/72 are compared with those for 1968/69 by size of holding.

Table 5

Yields of hyv wheat for 1968/69 and 1971/72

Size Class	1968/69	1971/72
	quintals per hec	quintals per hec
0-7.1	35.78	30.72
7.1-11.6	33.99	35.85
11.6-17.2	38.49	35.67
17.2-26.3	35.44	37.08
26.3 & Above	33.67	32.69
All Farms	34.82	34.51

Source: 1968/69, *FMS Muzaffarnagur Table 5.90*, 1971/72, *Dasgupta, Table 65*

The first point to make about this comparison is that the overall average yield of hyv's remained virtually unchanged over this three year period - 34.82 quintals per hectare in 1968/69 and 34.51 in 1971/72. However, it would appear that there was some redistribution in the yield figures by size class. Of particular note was the decline in yield from 35.78 quintals per hectare to 30.72 for the under 7.1 acre group - a change from the second highest yield figure to the lowest. The other main point is that whereas the 11.6-17.2 acre size class had the highest yield at 38.48 quintals per hectare in 1968/69, by 1971/72 the highest yield was achieved by the larger - 17.2-26.3 acre group.

What conclusions can be drawn from this? Firstly, it must constantly be borne in mind that 150 farms is a relatively small sample, and the time period involved quite short, so that these yield alterations may well be the result of factors specific to this locality and time period. However, if that is not the case then it is clear that the inverse relationship which gave the smallest size class an advantage in the yield figures for local wheat in the year 1968/69 had been completely overturned for hyv production in 1971/72 and that yield advantage had shifted upwards in favour of the relatively large 17.2-26.3 acre size class. There are authors, particularly Albert Berry and William Cline [*1979*] who argue that the inverse relationship will eventually reassert itself. They maintain that even in instances where increasing returns to scale might be expected such as the cultivation of crops requiring farm machinery that rely upon some minimum scale in order to utilise the machinery fully, the scale advantage of large farms is by no means immutable. They consider that even in cases where fairly large farm machinery is appropriate it can be made available to small farms on a rental basis, and, as in the case of Japan, small machines can be developed. Once this has been done, the productivity and cost advantages implied by utilisation of large inputs of "free" family labour will cause the inverse relationship between size of holding and productivity to be re-established. Given the differential prices and utilisation of capital and labour on small and large farms, and the degree of substitutability of these two factors, they consider that in the long-term the production function is likely to exhibit constant rather than increasing returns to scale. All this, of course, begs the question of whether the small farmers can in fact obtain access to expensive capital, even on a rental basis.

The table above certainly suggests that in 1971/72 large landowners among this sample of households were enjoying the benefits of scale. While seed, water and fertilizers are divisible and in that sense size-neutral (although not in terms of their availability) tractors, tubewells and most other machinery require a minimum farm size to be used with maximum benefit. It is clear from Chapter 5 that small cultivators did not possess in any significant numbers the expensive pieces of capital equipment such as tractors and threshers, and at the same time were also more likely to be reliant upon buying water rather than having their own tubewells. The importance of capital under the new technology is a factor which has been stressed by quite a number of writers. G.K. Chadha [*1978*] for instance, believes that whereas the capital:labour ratio is important under the new technology it was the land:labour ratio that was important under the old technology. Writing on the Punjab he maintains that "with a smaller stock of implements and machinery, small farms are competing with medium and large farms more on the strength of bullock (and human labour)". Furthermore, whereas small farms have a higher per acre investment on traditional items such as wooden ploughs, chaff-cutters, hoes, etc., they are at a distinct disadvantage when it comes to improved items such as seed drills, threshers, etc. and when it comes to an advanced level of mechanization - tractors - they simply cannot compete with large and medium farmers. [*Chadha, 1978, A95*] On the same theme, G.R. Saini [*1972*] writing on Punjab and West UP states that "the new agriculture is characterised basically by a capital-intensive technology, and makes a major shift from an essentially labour based technology of the past . . . Under the traditional agricultural framework small farmers with their relative abundance of family labour could obtain higher productivity than larger. The

emergence of capital intensive technology has shifted the advantage of productivity per acre in favour of big farmers."[*Saini, 1972: A18*]

The table below provides some figures for specific inputs for hyv wheat production for the year 1971/72, contrasted with expenditure on the same inputs for 1966/67, the year before hyv's were introduced.

Table 6
Wheat: Input Costs per hectare by Farm Size in Muzaffarnagur 1966/67 and 1971/72

Size Class	Fertilizers and Manures		Hired Labour		Animal Labour	
	1966/67	1971/72	1966/67	1971/72	1966/67	1971/72
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
0-7.1	95	307	-	40	450	171
7.1-11.6	16	204	42	111	358	170
11.6-17.2	14	231	56	98	280	164
17.2-26.3	-	307	86	124	236	135
Above 26.3	14	250	58	111	239	124

Source: *Roshan Singh*, reproduced by *Biblap Dasgupta, as Table 59*

There are several interesting points to be made about this data. The importance of fertilizers and manures was greatly enhanced as a result of using hyv's and this is reflected in the comparative figures for the two years for all size classes. [*Dasgupta, 1977: 51*] During the earlier period the smallest size class spent most on this input - Rs. 95 per hectare although this may well have reflected a larger input of manure. In 1966/67 expenditure on manures and fertilizers by cultivators with holdings above 7.1 acres did not exceed Rs. 16 per hectare. By 1971/72 all cultivators had greatly increased their expenditure on fertilizers and manures, with the smallest size class equal with the 17.2-26.3 acre group on Rs. 307 per hectare - although once again this may well have reflected a larger input of manures by this group. In order to be effective, the fertilizer has to be applied at the right time and in the right doses with the appropriate

input of water. This necessitates not only that irrigation facilities should be available, but that they should be available at the right time and in the right quantity. This is something that is not necessarily the case for canal irrigation which is often delivered to smaller farmers at a time and in a quantity not at their own choosing. [*Dasgupta, 1977: 85*] We know from the introduction that canal irrigation was of greater importance to small landholders in the district, whereas tubewells, which provide a more timely and controllable source of irrigation, were important for holdings above 10 acres was a contributory reason why small cultivators failed to achieve as high a yield as large landholders for the cultivation of hyv's in 1971/72.

The amount spent on hired labour increased on all sizes of farms, and by 1971/72 had even made an appearance on farms below 7.1 acres where family labour was available in relative abundance. Expenditure on hired labour was at its highest for both years for the 17.2-26.3 acre size class, and by 1971/72 accounted for an expenditure of Rs. 124 per hectare by this group. (The 17.2-26.3 acre group has already been identified as having had the highest yield for its wheat crop at this date. The significance of this size class will become apparent as the analysis proceeds.)

High yielding varieties intensified considerably the seasonal peaks of labour requirement. A shorter maturing period made two or more crops possible, which meant that the previous crop had to be threshed and transported as well as harvested before the second crop could be proceeded with. The enhanced demand for hired labour that this created has been well documented. Bhalla & Chadha maintain that all available empirical studies at both micro and macro level indicate that far from displacing labour, new technology led to precisely the

opposite, a point which we shall consider fully in Chapter eight which is devoted to agricultural labour. [*Bhalla & Chadha,. 1982: 877*] This has very important implications for the structure of agriculture - implying changes in the relations and forces of production. In Chapter 2 the whole concept of a mode of production was dealt with in depth. The idea of a capitalist mode of production was explored in detail, and it was hypothesized that this would be a useful framework for examining the generation of poverty and inequality in Western UP. Along with capital accumulation and production for the market a key element of the capitalist mode is that labour progressively loses control of the means of production - land - to the extent that it finally has to sell its labour-power as a commodity in order to achieve a subsistence. Within the context of the increase in labour hiring identified for wheat cultivation among this sample, the key question then becomes whether there was at the same time an increase in the proportion of landless labourers. This, in retrospect we know to have been the case. [*Gov't of India, 1981: 4-5*] This situation came about as larger cultivators resumed cultivation of hitherto leased or share-cropped land, spurred on by the considerable profitability of the high yielding wheat crop.

But the situation was more complex than that. Not all agricultural labourers came from the class of landless. Sheila Bhalla identified a class of labourers in Haryana who belonged to landed families. At the same time an increase in labour hiring does not necessarily imply a simplistic polarisation between landed and landless. An increase in the demand for agricultural labour may also be expected to push up wages and employment prospects of the landless population. These points will be examined fully in Chapter 8 . What is important here, is that an increase in labour hiring in the region

signified an alteration in the relations of production, and was seen by many, as an indication, although not the only one, of agricultural capitalism.

The traditional complement to human labour in Indian agriculture is bullock labour, represented in the table as animal labour. Expenditure per hectare on this input declined for all size classes between the two dates - from Rs. 450 per hectare to Rs. 171 per hectare for the under 7.1 acre size class, and from Rs. 239 to Rs. 124 for the 26.3 acre and above size class. It is significant that there was much less difference between the value of this input for the smallest and largest size classes at the latter date than at the former. The implication is clear - cultivators must have substituted mechanical forms of draught power for the traditional human and animal labour. "This is what one would expect on larger farms, given as Rao maintains, that "a rise in prices of agricultural commodities has led to a rise in the money value of the wages of agricultural labourers as well as to a rise in the cost of bullock labour. This has resulted in traditional biological sources of energy becoming more costly in relation to mechanical sources. Thus, despite the increasing supply of labour, it has become profitable for the large wage-based farms to adopt mechanized techniques."[*Rao, 1975: 39*]

By contrast, small farmers do not possess either the resources or the credit to enable them to invest in large and expensive indivisible items of capital equipment. [*Saini, 1972*] [*Bhalla & Chadha, 1982*] Consequently, if they wished to use modern capital inputs such as tractors, threshers and combines which contribute towards maintaining higher yields by overcoming bottlenecks, they must hire them. It is not known to what extent this was the case among this sample in UP. However, in a study of Punjab, it was found that this was precisely

how small farmers were attempting to compete with larger cultivators - of a sample of farms between 2½ and 10 acres whereas only 6% actually owned threshers, 86% were users. [*Bhalla & Chadha, 1982: 829*]

Overall the amount incurred on capital expenditure has increased markedly over this period, as is illustrated in the table below.

Table 7

Wheat: Cost per Acre in Muzaffarnagur District in 1968-69

	1966/67		1971/72	
Item	Rs.	%	Rs.	%
Seeds	27.92	6.31	34.80	5.5
Manures & Fertilizers	4.86	1.1	99.96	15.6
Depreciation	23.47	5.3	62.73	9.8
Interest on fixed capital	26.30	5.9	77.29	12.1
Interest on working capital	6.07	1.4	4.86	0.8
Land Revenue	2.43	0.6	2.43	0.4
Land Rent	203.55	45.8	209.62	32.8
Irrigation	13.36	3.0	23.88	3.7
Hired Labour	25.09	5.7	42.9	6.7
Tractor & Thresher charges	-	-	21.03	3.3
Animal Labour	111.29	225.1	59.49	9.3
Total	444.34	100.0	638.99	100.0

Source: *Roshan Singh: reproduced by Biblap Dasgupta, as Table 2.9*

Fertilizer use has already been examined, and it comes as no surprise that in aggregate, expenditure on this input rose from less than 5% of costs to more than 15% between the two dates. If the items depreciation, interest on fixed and working capital, and tractor and thresher charges are used as a proxy to represent capital inputs, then in total the proportion spent on capital increased from 12.6% to 26% of total costs, while the proportion spent on animal labour declined from 25.1% of total costs to 9.3%.

From chapter 5 it is known that the bulk of this capital input was likely to have been represented by investment in tubewells, and that for the region as a whole they were concentrated in the hands of cultivators with holdings above 10 acres. Their importance in

raising yields has already been mentioned. The item tractor and thresher charges which appeared for the first time in the year 1971/72 and represented 3.3% of total costs, indicates that some farmers must have been investing in these items and hiring them out. Overall then, it seems that hyv wheat cultivation led to an increase in capital accumulation, particularly, among the larger cultivators, and in that respect contributed towards a process of capital deepening for the class of already rich farmers. This is likely to have led to a cycle of higher income - higher savings - higher capital investment and yet larger income among a class of cultivators who were already rich, and thus to have accentuated the inequalities between classes in the region.

Bearing these comments in mind, let us now look at the total cost of production for wheat by size class over this period, but including also data for 1968/69.

Table 8
Cost of Production of Wheat per Hectare, 1966 to 1972

Size Class	1966/67 traditional	1968/69 all wheat	1968/69 hyv	1971/72 hyv
	Rs.	Rs.	Rs.	Rs.
0-7.1	1,509	1,621	1,856	1,552
7.1-11.6	1,304	1,396	1,572	1,467
11.6-17.2	1,087	1,402	1,539	1,423
17.2-26.3	1,054	1,417	1,774	1,693
26.3 & Above	1,019	1,214	1,210	1,739

Source: *1968/69 FMS Muzaffarnagur, 1966/67 and 1971/72 Roshan Singh*

This table illustrates well the evolution of the cost structure of wheat cultivation over the period of the introduction of high yielding varieties. Taking the year 1966/67 first, prior to the introduction of hyv's, there was a quite clear inverse relationship between cost per hectare and size of holding. This was largely due, as seen in Table 6, to the high cost of maintaining draught animals

for the smaller size classes, and to a lesser extent to the imputed costs of family labour.

Looking at the figures for all wheat for the year 1968/69 then the cost structure had begun to alter. Although the under 7.1 acre size class still had the highest costs at Rs. 1,621 per hectare, the 17.2-26.3 and 11.6-17.2 acre groups had started to catch up, with Rs. 1,417 and Rs. 1,402 per hectare respectively. For hyv cultivation in 1968/69 the 17.2-26.3 acre size class with costs of Rs. 1,856 per hectare had slightly lower costs than the under 7.1 acre group with costs of Rs. 1,856. By 1971/72, and almost universal cultivation of hyv wheat, the inverse relationship between costs and size class had completely disappeared with both the two largest size classes incurring higher expenditure than the under 7.1 acre group. From the foregoing examination of the available data it would appear that the two principal items responsible for higher costs per hectare for larger landholders were hired labour and capital expenditure.

If this pattern was repeated widely in Western UP, as is known in retrospect to have been the case, then it was likely to have had important consequences for the structure of agricultural production in the region, implying changes in the forces and relations of production which if not initiated, were certainly accelerated by the introduction of high yielding varieties of wheat and associated package of practices. Put in its simplest form, there has been a transition from an agriculture dominated by family farms, using largely family and bullock labour, to one in which hired labour and the use of capital are dominant features. In a recent article, Utsa Patnaik [*1988*] has highlighted a similar transition in Haryana agriculture.

That the cultivation of high yielding varieties of wheat provided farmers with a higher net income and return on capital than would have

been possible with traditional varieties has now become a commonplace. The extent to which this was so for the Farm Management sample is examined in the two tables below which contrast the costs per quintal with the returns. All this data applies to the year 1968/69 as unfortunately there is no accessible data disaggregated by size of holding for a later date. In drawing conclusions it must therefore be borne in mind that in 1968/69 the transition from traditional methods of cultivation with local wheat to the more capitalized cultivation of hyv wheat was by no means complete.

Table 9

Cost per quintal of wheat production, Muzaffarnagur, 1968/69

Size Class acres	1968/69 all wheat	1968/69 hyv wheat
0-7.1	48.62	43.34
7.1-11.6	42.98	39.25
11.6-17.2	46.19	40.34
17.2-26.3	48.53	44.04
26.3 & above	39.96	32.03
All Farms	44.14	37.84

Source: *FMS Muzaffarnagur, Tables 5.70,& 5.98*

Overall, costs per quintal were higher for all farms for the cultivation of all wheat than for high yielding varieties, Rs. 44.14 per quintal compared to Rs. 37.84 per quintal for the former. This was entirely the result of the higher yield per hectare achieved for hyv wheat. The actual structure of costs by landholding group differed only in one respect between the two types of wheat. Whereas for all wheat the less than 7.1 acre class had marginally the highest costs at Rs. 48.62 per quintal, this position was taken by the larger 17.2-26.3 acre size class for hyv wheat - once again the result of relatively high expenditure on hired labour and capital by this group. Significantly, the largest size class with holdings in excess of 26.3 acres had the lowest costs per quintal for both categories, and indeed

showed the greatest differential between all wheat and hyv wheat at nearly 20%.

1.1 RETURNS TO WHEAT CULTIVATION

In the table below are presented three sets of data for the year 1968/69 showing gross income, net income and farm business income per hectare for all wheat and hyv wheat.

Table 10

Returns to wheat cultivation, Muzaffarnagur 1968/69 (Rs. per hec)

Size Class acres	Gross Income		Net Income		Farm Business Income	
	all wheat	hyv	all wheat	hyv	all wheat	hyv
0,7,1	2,961	3,802	1,340	1,946	2,009	2,620
7,1-11,6	2,897	3,530	1,501	1,958	2,110	2,559
11,6-17,2	2,702	3,413	1,300	1,874	1,880	2,427
17,2-26,3	2,604	3,590	1,187	1,816	1,800	2,457
26,3 & Above	2,700	3,341	1,486	2,131	2,084	2,723
All Farms	2,720	3,462	1,370	1,988	1,976	2,592

Source: *FMS Muzaffarnagur, Tables 5.52, 5.87, 5.81, 5.115*

From our point of view the most useful set of returns is that for farm business income. This comprises gross revenue minus cash and kind expenses actually incurred for such things as labour, seeds, fertilizers and other inputs, the payment of land revenue and other cesses, depreciation, charges on fixed assets and interest on crop loans, and interest on leased-in land. [*FMS, 1968-69*] It thus constitutes the returns to the farm operator's and his family's labour, together with that on owned capital and owned land, and has the important advantage of excluding the imputed value of family labour.

For all farms the average farm business income was Rs. 2,592 per hectare for hyv's compared to Rs. 1,976 per hectare for all wheat - a difference of 31.2%. This in fact underestimated the differential between the returns to traditional and hyv wheat because the definition "all wheat" also included the hyv crop. Although the

largest - over 26.3 acre size class appeared to have the most to gain in absolute terms from sowing hyvs - with a farm business income of Rs. 2,723 per hectare for this crop, it was the 17.2-26.3 acre group which had the largest differential income between all wheat and hyv's - Rs. 1,800 per cropped hectare for the former and Rs. 2,457 for the latter - a difference of more than 36%. The under 7.1 acre size class had the second highest farm business income per hectare for hyv cultivation at Rs. 2,620.

Quite clearly, the introduction of high yielding varieties of wheat enabled all farms of whatever size class included in this sample to gain appreciably from their cultivation. The resources and other requirements needed to adopt the recommended practices initially placed the large landholders at an advantage over the small ones. The large cash requirements for purchase of inputs and the risk implicit in the adoption of new practices made it inevitable that those with savings or easy access to loans were amongst the earliest adopters. Farmers with holdings above about 12.5 acres could meet these requirements. Supplementary water was very important, and owners of private tubewells had significant management advantages over those dependent on public irrigation. Tractors were needed for land shaping to make the best use of available water, and for timely operations for multiple cropping. [*Ray, 1985: 71*]

The returns to the capital and labour engaged in production of the new wheat varieties were well above the costs of these factors and much above the returns that non-adopters could obtain from the same production factors. As a result the larger cultivators among the innovators made large profits, much of which was reinvested in deepening the capital base of their holdings. [*Ray, 1985: 67*] It is therefore hardly surprising that as Roshan Singh's resurvey in 1971/72

showed, adoption by that date had become almost universal - we estimate to over 40% of total cropped area. Small cultivators in particular attempted to compensate for their lack of overall size by turning over a disproportionately large percentage of their area to what was clearly a profitable crop.

Turning now to the marketing aspects of hyv wheat production, to the extent that the introduction of hyvs resulted in an increase in output available for the market, there was a downward pressure on prices of all varieties. However, at least until the late 1970's the Government sponsored price support policy ensured that producers received a good commercial return for their hyv crop.

When it comes to marketing, small farmers are at a distinct disadvantage compared to large farmers. As Sheila Bhalla has shown for Haryana, they lack storage capacity and are commonly under pressure from creditors. Consequently, they often sell immediately at low prices right after the harvest, to middlemen who store their grain, get credit for holding it and sell it at a higher price later on. As long as this goes on, the small farmer risks making less money from a bigger harvest, after spending more money on inputs. His problems are often worse in a bumper crop year, when local post-harvest prices generally fall.

The figures produced by the farm management studies for farm business income placed standard values on crop output irrespective of farm size, so did not take account of the differential marketing conditions faced by farmers with different sized holdings. Bearing this in mind, and given that there was little difference in the farm income per hectare between size classes for this crop, and certainly no clear inverse relationship discernible, there was considerable scope for the generation of large income inequalities amongst

cultivators with different sized holdings as a result of sowing high yielding varieties of wheat.

The larger the holding, the higher the overall income and therefore the greater the capacity to reinvest in agriculture, particularly in capital. This further enhanced yields and returns, so that as agricultural production became more sophisticated a dynamic process was set up whereby smaller less capitalized holdings were likely to fall further and further behind the incomes generated by bigger holdings.

As the situation was in 1968/69, it seems from the evidence we have presented here that it was the 17.2-26.3 acre size class that was gaining most from cultivating hyv's, whether it was in terms of yields or additional income. This was also the class most likely to hire labour and the one which had the largest proportion of its costs accounted for by capital. This is significant in view of the findings of Chapter 5, where we found that there was a discrete jump in ownership of capital equipment - particularly powered tube-wells at the 15 acre level in Western UP as a whole. This reinforces the question of whether the 15-25 acre size class in particular can be described as capitalist farmers.

POSTCRIPT

Throughout the 1970's the proportion of area sown with hyv wheat continued to increase. Between 1973 and 1977 it increased by about 39%, covering nearly 2.4 million hectares, or 40% of the net cultivated area in the region. [*Ray, 1985: Table 15*] By 1976 High Yielding Varieties covered more than 91% of the total wheat area of the region, and if improved local varieties are included the coverage was 100%. [*Clift, 1983: Table 15*] Wheat yields continued to increase in the region as a whole, from an average of 10.7 quintals per

hectare in the triennium 1969-72 to 15.8 quintals per hectare, in the year 1975-76, an increase of 48%. [*Dept. of Agriculture, 1977*]

2. PADDY PRODUCTION

The most important kharif crop grown in the region and amongst the sampled farms was paddy, covering respectively 10.7% of total cropped area for Western UP in 1970/72, and 9.9% for the sampled households in Muzaffarnagur District in 1968/69.

The high yielding varieties programme was much less successful for rice. There were always problems with the seeds susceptibility to pests and diseases, particularly in the initial years of their introduction, and new varieties had to be changed frequently on account of this problem. The spread of hyv paddy was therefore not as dramatic and universal as was the case for wheat. As a result at the date of the farm management study hyv paddy had been adopted by only a handful of households. It will therefore not be examined as a separate category.

The paddy grown by this sample of households in Muzaffarnagur was largely intended for home consumption. The table below shows the area and yields of the crop, as well as the labour input per hectare.

Table 11

Total Cropped Area under Paddy, Yields per Hectare, and Labour Input in 1968/69

Size Class acres	Total Cropped Area %	Yield quintals	Labour Input man days per hec
0-7.1	12.0	25.92	67
7.1-11.6	9.7	27.15	64
11.6-17.2	10.7	24.59	79
17.2-26.3	8.4	23.36	65
26.3 & Above	10.3	24.75	69
All Farms	9.9	24.79	69

Source: *FMS Muzaffarnagur, Tables 5.140*

The under 7.1 acre group had the largest area under paddy - 12% - which reflected the fact, highlighted earlier, that it put more of its land under kharif food crops than any other group. This is not surprising in view of Rudra's findings that farmers in all size classes attempt to be self-sufficient in all crops required for home consumption. [*Rudra, 1983: 1720*]

The yield figures for paddy amongst this sample ranged from 23.36 quintals per hectare for the 17.2-26.3 acre size class to 27.15 quintals per hectare for the 7.1-11.6 acre size class, with an average of 24.79 quintals per hectare. There was an inverse relationship discernible for the three size groups between 7.1 and 26.3 acres. Paddy cultivation is particularly labour intensive and difficult to mechanize in the present state of technology, requiring transplantation and constant weeding. [*Dasgupta, 1977: 232*] These are tasks normally performed by female labour, but the labour input does not exhibit any correlation with the yield figures. Neither, as we see from the table below did there appear to be any correlation between costs per hectare and yields.

Table 11

Total Cropped Area under Paddy, Yields per Hectare; and Labour Input in 1968/69

Size Class acres	Total Cropped Area %	Yield quintals	Labour Input man days per hec
0-7.1	12.0	25.92	67
7.1-11.6	9.7	27.15	64
11.6-17.2	10.7	24.59	79
17.2-26.3	8.4	23.36	65
26.3 & Above	10.3	24.75	69
All Farms	9.9	24.79	69

Source: *FMS Muzaffarnagur, Tables 5.140*

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Table 12
Cost of Production per hectare and per quintal of Paddy in 1968/69

Size Class	Cost per hec	Cost per quintal
	Rs.	Rs.
0-7.1	1,031	38.17
7.1-11.6	977	32.41
11.6-17.2	1,050	41.42
17.2-26.3	980	40.71
26.3 & Abpove	1,018	39.90
All Farms	1,013	39.59

Source: *FMS Muzaffarnagur, Tables 5.143, 5.152*

Compared to wheat production, there was much less variation by size of holding in the cost of production per hectare of paddy. It ranged from Rs. 977 for the 7.1-11.6 acre size class to Rs. 1,050 for the 11.6-17.2 acre group. If these figures are compared with those for labour input, the correlation is fairly close, suggesting that the main factor accounting for different costs per hectare was therefore likely to be the labour input. This suggests that other inputs were fairly similar between holdings and points towards a considerable degree of uniformity in the techniques and organization of paddy cultivation by cultivators in the sample at this date.

The costs per quintal of paddy production ranged from a low of Rs. 32.41 on farms between 7.1 and 11.6 acres and a high of Rs. 41.42 on farms between 11.6 and 17.2 acres, accounted for more by differences in yields than differences in costs. The average cost per quintal for all farms worked out at Rs. 39.59 per quintal, with the other sized groups varying little from this figure.

3. SUGARCANE PRODUCTION

Sugarcane was a crop of very great importance in the district. In the region as a whole it covered 9% of total cropped area compared to 27% among the sampled households in Muzaffarnagur District. This is a very high percentage, and not only reflects the historical importance of the crop in this district, but also its continued profitability. Sugar production in the Rohilkhand and Upper Doab Divisions of Western UP is unique in that unlike in Southern and Western India, and Eastern UP, where the industry is dominated by large-scale sugar mills, the informal sector of khandsari production is still of overwhelming importance. [*Commander, 1985: 512*]

The table below presents figures for the percentage of total cropped area under sugarcane by size class for the sample, along with the yield figures.

Table 14

Area and Yield of Sugarcane, Muzaffarnagur 1968/69

Size Class	% Area under Sugarcane			Yield		
	Planted	Ratoon	Total	Planted	Ratoon	Total
Below 7.1	11.8	8.8	20.6	479.5	356.3	417.9
7.1-11.6	16.6	10.3	26.9	484.7	334.7	409.7
11.6-17.2	14.4	12.0	26.3	467.6	332.4	400.0
17.2-26.3	18.2	9.3	27.5	507.7	383.8	445.7
26.3 & above	17.0	11.2	28.2	554.1	342.8	448.4
All Farms	16.4	10.6	27.0	515.6	351.4	433.5

Source: *FMS Muzaffarnagur, Tables 5.131 & 5.132*

Sugarcane has a production cycle longer than that of any other crop grown in the region, monopolizing the land throughout the year. Sown generally from mid-February through to April, it is harvested between November/December and March/April. It is grown in a cycle - ratoon cultivation following planted. It is highly labour intensive, needing consistent hoeing prior to harvesting and requires considerable irrigation inputs. [*Commander, 1985: 507*]

Looking at the table, there is a clear although not monotonic correlation between size of holding and area under sugarcane. The lowest proportion of land under this crop was accounted for by the smallest size class with 20.6% of total cropped area, whereas the largest size class had 28.2% of its total cropped area under sugarcane. To what extent this is a survival of the historically important zamindar-cum-khandsari production, of *mahajans* (traders) it is not possible to say. [*Commander, 1985: 508*] There is also the fact that rising costs of basic inputs - irrigation, fertilizers, pesticides, etc. meant that it was the more prosperous strata of the peasantry who were most involved in cane cultivation. [*Commander, 1985: 512*] Irrigation is of particular importance to the successful cultivation of sugarcane, and in Muzaffarnagur District practically the entire planted and ratoon crop of the sample households was irrigated.

Planted sugarcane was the main crop and yielded an average of 515.6 quintals per hectare, 47% higher than the yield of ratoon cane at 351.4 quintals per hectare. There was a much larger variation by size class in the planted yields than in the ratoon yields, which may indicate that there is little that cultivators can do with regard to the technique of ratoon cultivation to alter the yield.

For planted sugarcane, the largest - above 26.3 acre size class - had the highest yield with 554.1 quintals per hectare, and the 11.6-17.2 acre size class the lowest with 467.56 quintals per hectare. With this one exception there is a clear correlation between yield of planted sugarcane and size of holding. By contrast, there is no clear correlation between size of holding and the yield of the ratoon crop. It varied from a high of 383.8 quintals per hectare for the

17.2-26.3 acre size class to 332.4 quintals per hectare for the 11.6-17.2 acre group.

The table below shows the costs of production of sugarcane per hectare.

Table 15

Costs of Production of Sugarcane per Hectare, Muzaffarnagur 1968/69

Size Class	Planted	Ratoon
	Rs.	Rs.
0-7.1	2,887	1,379
7.1-11.6	2,462	1,165
11.6-17.2	2,042	1,187
17.2-26.3	1,858	1,227
26.3 & Aboive	2,325	1,184
All Farms	2,194	1,217

Source: *FMS Muzaffarnagur, Table 5.12*

For both planted and ratoon sugarcane, by far the highest costs per hectare were borne by the under 7.1 acre size class. Taking planted sugarcane first, costs declined from Rs. 2,887 per hectare for the smallest size class to Rs. 1,858 for the 17.2-26.3 acre group, and then rose again to Rs. 2,325 for the largest size class. For the ratoon crop too, the smallest size class bore the highest costs - Rs. 1,379 per hectare. Between 7.1 acres and 26.3 acres there was a rising trend, although the variation was very small - from Rs. 1,165 to Rs. 1,227 per hectare, and thereafter costs declined for the largest size class. The very small variation in ratoon costs compared to those for planted sugarcane reinforces the earlier suggestion that there is little that cultivators can do in terms of technique - and hence capital inputs - to vary the yield of the ratoon crop.

To what extent the variations in costs in both the planted and the ratoon crop were due to differences in labour input can be seen

from the table below.

Table 16

Labour Inputs - Man Days per Hectare, Muzaffarnagur 1968/69

Size Class	Wheat		Paddy	Sugarcane	
	All Wheat	HYV		Planted	Ratoon
0-7.1	84	88	67	175	132
7.1-11.6	58	55	64	130	96
11.6-17.2	59	61	79	108	103
17.2-26.3	64	89	65	88	85
26.3 & above	43	47	69	123	101
All Farms	56	62	69	114	99

Source: *FMS Muzaffarnagur, Tables 5.63, 5.99, 5.149, 5.23*

The labour inputs for wheat and paddy have been included in order to illustrate the comparatively very large labour input which goes into sugarcane cultivation, particularly the planted cycle of the crop. The pattern of labour input for planted sugarcane follows that for costs but does not entirely account for the difference. It varies from 175 labour days for the smallest size class to 88 labour days for the 17.2-26.3 acre size class, with an average of 114 man days for all farms, compared to 69 for paddy and 62 for hyv wheat. However, despite these high figures, as sugarcane cultivation requires a minimum 12 months of land use the total labour requirement in mandays during its entire cultivation period is considerably less compared to a combination of crops which could be raised during the same period. Its relative profitability, ease of labour management and most importantly the capacity to wait for a longer period to enjoy the fruits of farming, made the cultivation of sugarcane very attractive to farmers with large land holdings. [*Ray, 1985: 33*]

Although the labour demand for the ratoon crop is below that for the planted crop it still reached an average of 99 man days for all farms. Whereas small cultivators were able to supply a large part of their labour input from family members, due to the highly seasonal

nature of cane cultivation with a peak labour demand at the time of harvesting and crushing, they probably needed to hire in some labour at that time. For the larger cultivators the bulk of their labour demand for cane cultivation would have been met by hired labour, and in particular, the peak demands were likely to have been supplied by a "seasonal labour force that included an ever larger component of landless labour."[*Commander, 1985: 513*]

Despite the very large labour input by cultivators under 7.1 acres for planted sugarcane, they were unable to meet the yield of all but the 11.6-17.2 group. Logically, therefore, it is factors other than labour input alone that created the quite considerable differences in yield for this crop by size of holding. In view of earlier comments on the increasing importance of complementary inputs such as adequate irrigation, fertilizers, pesticides, etc. it seems clear that diminishing returns to labour have set in. Labour can only be substituted for capital in agricultural production up to a point. Once that point is reached, larger landholders with their better access to capital inputs are placed at a distinct advantage compared to their smaller counterparts.

Sugarcane cultivation had the potential for generating a level of income higher than for any other crop - although cultivation does take up two crop seasons. The table below gives figures for gross, net and farm business income per hectare.

Table 17

Returns to Sugarcane Cultivation, Muzaffarnagure 1968/69

Size Class acres	Gross Income		Net Income		Farm Business Income	
	Planted	Ratoon	Planted	Ratoon	Planted	Ratoon
0-7.1	4,555	3,417	1,668	2,038	2,544	2,835
7.1-11.6	4,652	3,215	2,190	2,050	2,978	2,756
11.6-17.2	4,505	3,170	2,463	1,983	3,125	2,638
17.2-26.3	4,896	3,468	3,038	2,181	3,727	2,840
26.3 & Above	5,351	3,207	3,026	2,023	3,771	2,675
All Farms	4,969	3,271	2,775	2,054	3,502	2,725

Source: *FMS Muzaffarnagur, Tables 5.5, 5.46*

When looking at income from various crop production, it must constantly be borne in mind that as a result of the FMS methodology these are standardised figures, and assume the same price per quintal for the output of all cultivators irrespective of size of holding. In reality this is not likely to be the case at all. Cultivators of different size groups and different means are likely to face quite different sets of constraints when it comes to marketing their output. Small and poor landholders have urgent requirements for cash as well as lack of storage facilities, and their bargaining power is reduced due to forced sales at unfavourable prices. [*Rudra, 1983: 2033*]

With regard to sugarcane cultivation the situation was further complicated in this district as a result of the close links between the informal khandsari producers and the cultivators. Whereas there grew up a system of moneylending and debt-linkages between individual khandsaris and petty cane producers, which effectively assured a supply of cane to the khandsaris at a price and on conditions determined by the latter, the relationship with larger cane producers was quite different. In the first place the large cultivator and the khandsari may be one and the same person, and in the second place competition from the sugar-mill sector meant that individual khandsaris paid rates for cane significantly higher than those offered

by the mills. [*Dasgupta, 1977: 131*] The figures in the table above are therefore only a rough guide to the returns to cane cultivation and may well significantly understate the true differentials.

Looking first at the income figures for planted sugarcane, for all the measures, gross, net and farm business income the returns from cultivating sugarcane were highest for either the 17.2-26.3 acre size class or the above 26.3 acre group. As in the case for wheat and paddy, attention will be concentrated on farm business income. For this there was a quite marked positive relationship between the size of holding and return. The income range was very large - from Rs. 3,771 per hectare for the largest size class to Rs. 2,544 for the smallest. The distribution is clumped into three groups, with the two largest size classes exhibiting quite considerably higher income than the two intermediate classes, and the under 7.1 acre size class trailing.

Looking at farm business income for ratoon sugarcane, not only did the ranking of the size groups alter completely compared to the planted crop, but there was by no means the range of income. The highest income per hectare accrued to the 17.2-26.3 acre size class with Rs. 2,840, closely followed by the smallest size class. The 11.6-17.2 acre size class had the lowest income with Rs. 2,638 per hectare, a difference of just 7.6%, whereas the range between lowest and highest income per acre for planted sugarcane was 48%.

This examination of the costs and returns of the cultivation of planted and ratoon sugarcane brings out some important and more generally applicable points. Both planted and ratoon sugarcane are labour intensive crops, the former more so than the latter, but without adequate irrigation and complementary inputs planted sugarcane in particular fails to meet its yield potential. The fact that

smaller landholders were able to compete successfully in the production of the ratoon crop, whereas they appeared to be at a distinct disadvantage when it came to the main planted crop suggests that the planted sugarcane cultivation provides scope for the use of yield enhancing capital inputs, whether in the form of machinery or biological inputs, and which larger cultivators were in a position to provide but small cultivators could not. Smaller cultivators attempted to compensate for the paucity of complementary inputs by applying enormous amounts of labour to sugarcane cultivation - but from the low yields achieved for their planted crop it is quite clear that this input must have been experiencing diminishing returns.

POSTCRIPT

Throughout the 1970's the area under sugarcane in the Western Region as a whole increased more than for any other crop. Between 1971 and 1977 the increase amounted to 21.0%, compared to just 5.9% for wheat and 6.7% for rice. It is to be expected that this was a reflection of the great profitability of the crop for large landholders, who could invest in the irrigation, fertilizers, and other complementary inputs that would enhance its yield.

In Chapter 5 it was shown that in the Western Region as a whole it was farmers with holdings between 15 and 50 acres who not only had the best irrigation facilities (measured in terms of the percentage of area irrigated by powered tubewells) but also invested most in capital inputs such as tractors and threshers. As this trend progressed it was inevitable that labour alone, unaccompanied by complementary inputs of capital, was going to be an inadequate input if potential yields were to be realized. Small cultivators, without the resources to purchase their own capital inputs would therefore be at a progressive disadvantage when it came to the cultivation of cash crops

such as planted sugarcane and hyv wheat, which have the potential for generating high incomes provided adequate complementary inputs are available. The cultivation of these crops is therefore likely to progressively generate increasing income and wealth disparities among cultivators with different sized holdings.

CONCLUSIONS

In this section an examination was made of the yields, costs and returns of the three principal crops of the region and the district, vis. wheat, paddy and sugarcane, which between them accounted for more than 63% of the total cropped area of the sampled households. It is therefore reasonably safe to draw conclusions concerning crop production as a whole, and in the table below are presented figures showing the total value of crop production per annum per farm among the sample.

Table 18

Value of Crop Production Per Farm per annum 1968/69 (Rs.)

Size Class acres	Value of Output	% of Cash Receipts to Gross Ouput
	Rs.	%
0-7.1	6,635	60.6
7.1-11.6	13,078	74.5
11.6-17.2	17,619	72.5
117.2-26.3	25,989	81.7
26.3 & Above	45,085	80.7

Source: *FMS Tables 4.7, 3.89*

Clearly, by far the most important factor generating income inequalities was the size of holding. The 7.1-11.6 acre size class exhibited a value of crop production nearly double that of the smallest under 7.1 acre group. It was quadruple for the 17.2-26.3 acre size class and nearly seven times greater for the largest 26.3

acre and above class. If these ratios are compared with the average holding size of each size class they are almost identical. In short, in the year 1968/69 this sample of households exhibited constant returns to scale for crop production in general. However, as has already been noted for planted sugarcane and to some extent for high yielding varieties of wheat, larger landholders realized higher returns on these crops than smaller landholders. As capital and biological inputs with their inbuilt size bias became more and more used for a wider range of crops, it is surmised that increasing returns to scale for crop production in general for the district, and by implication, for the entire Western Region of UP is likely to have emerged, with the inevitable effect of widening income and wealth disparities among cultivators with different sized holdings.

The other point with regard to the above table concerns the percentage of cash receipts to gross ouput. This varied from 60.6% for the under 7.1 acre size class to 81.7% for the 17.2-26.3 acre size class. There could be several reasons for this differential. It could indicate that cultivators below 7.1 acres were more reliant upon sharecropping and therefore received a larger part of the "income" in kind, or perhaps more feasibly given that sharecropping was less prevalent in the Western Region, that a larger part of the output of small cultivators was being retained for home consumption. In any event, the implication is that cultivators below 7.1 acres had not only a lower absolute amount of cash at their disposal as a result of their smaller size and hence lower absolute output, but also had relatively less cash at their disposal because of the lower level of cash receipts. They were therefore at a very great disadvantage compared to larger landholders with regard to the availability of cash

for reinvestment in their farms - and thus the spiral of increasing disparities was perpetuated.

4. THE FARM ENTERPRISE AS A WHOLE IN MUZAFFARNAGUR

In this section an examination of the structure of costs and returns to the farm enterprise as a whole will be made, concentrating primarily upon the costs and returns to cultivation. Particular attention will be paid to the pattern of input costs among different sized farms, on both a per hectare and a per farm basis. This will supplement the information already provided in the sections on individual crops. Before proceeding to the table, a word of caution. Biblap Dasgupta warns that cost figures are not always a good indication of the actual physical amount of inputs applied to land. Given the imperfections of the factor markets, some farmers would pay more or less than others for the same physical amount of an input. Farmers with better access to markets would pay a lower price, or, what amounts to the same thing, would get a better quality input for the same price. [*Dasgupta, 1977: 131*]

Table 19
Costs per Cropped Hectare, Muzaffarnagur 1968/69

Item	0-7.1		7.1-11.6		11.6-17.2		17.2-26.3		26.3 & above	
	Rs.	%	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Family Labour	194	17,5	141	15,0	105	12,7	89	10,9	79	9,7
Hired Labour	28	2,5	42	4,6	70	8,5	64	7,8	88	10,8
Total	222	20,1	183	19,5	175	21,2	153	18,7	167	20,4
Bullock Labour	439	39,7	331	35,2	278	33,7	264	32,3	222	27,1
Machinery	2	-	7	0,7	8	1,0	7	0,9	5	0,6
Seeds	151	13,7	183	19,5	136	16,5	148	18,1	191	23,3
Manures	15	1,4	11	1,2	13	1,6	16	2,0	11	1,3
Fertilizers	29	2,6	26	2,8	31	3,8	26	3,2	22	2,7
Irrigation Charges	46	4,2	46	4,9	48	5,8	49	6,0	48	5,9
Land Revnue	9	0,8	10	1,0	9	1,1	8	1,0	8	1,0
Rent of leased land	18	1,6	-	-	4	0,4	5	0,6	-	-
Depreciation	50	4,5	43	4,6	37	4,3	51	6,2	45	5,5
Interest on fixed capital	116	10,5	90	9,6	77	9,3	81	9,9	86	10,5
Interest on working capital	8	0,7	10	1,6	9	1,1	9	1,1	12	1,5
TOTAL	1,105		940		825		817		817	

Source: *FMS Table 4.14*

Looking firstly at the totals, costs declined with increasing size. The under 7.1 acre size class exhibited by far and away the highest costs with a total of Rs. 1,105 per cropped hectare. This reflected the situation for the individual crops already examined. Costs for this group were more than 17% higher than for the 7.1-11.6 acre size class and 35% higher than for the three size classes above 11.6 acres, where the costs were almost identical at about Rs. 820 per cropped hectare.

Examining the table in detail, the single largest item of expenditure for every farm was bullock labour. This ranged from a total of Rs. 439 representing nearly 40% of costs for the under 7.1 acre size class, to Rs. 222 per hectare for the over 26.3 acre size class, where it represented just over 20% of costs. There was a consistent decline in the cost of this item as size of holding increased. We have already mentioned in Chapter 5 the need of small cultivators to maintain at least one pair of working draught animals - clearly for them a crucial, but nevertheless indivisible and therefore expensive input given the size of holding. By contrast, larger landholders could utilise their draught animals much more effectively and so minimise the costs per acre. From this table it does seem that the cost of bullock labour was the major reason accounting for such high costs per hectare for small holdings.

The second most important cost for all farms was labour, representing about 20% of total costs for all farms. This is divided up into family labour and labour that is hired in. Although family labour is imputed a cost based upon the prevailing wage rate by the farm management study it is not a "real cost" in the sense that hired labour is. The real cost of family labour is that of housing, feeding and clothing, and has to be borne irrespective of whether the

family members work on the farm or not. The most important function of this item in the cost table is therefore to give some idea of the extent to which family labour contributed towards the production process on different sized farms. Clearly, on account of smaller overall size, the smaller the farm the more family labour could be utilized per hectare of land - and this was reflected in the figures. Whereas family labour "costs" were Rs. 194 per hectare, representing 17.2% of total costs on farms below 7.1 acres, they were only Rs. 79 per hectare, representing 9.7% of total costs on farms above 26.3 acres.

The larger the holding therefore, the greater the need to supplement the family labour force with hired labour. This was reflected in the figures - whereas the under 7.1 acre size class expended just Rs. 28 per hectare (2.5% of its total costs) on hired labour, the largest size class expended Rs. 88 per hectare (10.8% of its total costs). There was an inverse relationship between size of holding and expenditure on hired labour, but it was not completely monotonic, for the 11.6-17.2 acre size class spent slightly more on this input at Rs. 70 per hectare than the 17.2-26.3 acre group with Rs. 64. This raises the question of whether these large size classes were substituting capital for labour in production in the sense suggested by Rao, and discussed earlier. [*Rao, 1975: 23*]

If we just take the proportion of costs accounted for by labour and draught animals alone, then it amounted to an extremely large percentage of total costs for all farms. In the case of the under 7.1 acre holdings, costs imputed to labour and draught animals amounted to 60% of the total costs of cultivation, and for the largest size class 48%. If we abstract the cost of hired labour and add together the imputed cost of family labour and draught animals, the

difference between the smallest and largest holdings was even more marked, with more than 57% of costs accounted for by these two items alone for the under 7.1 acre group, compared to 37% by the above 26.3 acre group. This distinction is important because it illustrates the extent to which small holdings were dependent upon family labour and draught animal power and so were much more representative of "traditional agriculture" than larger holdings with their greater dependence on hired labour.

In the table below we present some data showing the actual number of days per cropped hectare contributed by family and hired labour, and the operationwise distribution of that labour.

Table 20
Inputs of Family and Hired Labour (Days) Muzaffarnagur 1968/69

Size Class	Labour per cropped hectare			All Labour		
	Family	Hired	Total	Harvesting	Inter-culture	Plough
0-7.1	87	10	97	44	15	11
7.1-11.6	63	16	79	37	9	9
11.6-17.2	47	27	74	33	10	9
17.2-26.3	40	24	64	29	6	8
26.3 & Above	35	35	70	33	8	7

Source: *FMS Muzaffarnagur, Tables 4.39, 4.44*

Total labour input ranged between 97 man days per cropped hectare for the smallest holdings to 64 on the 17.2-26.3 acre holdings. The bulk of the labour input - 90% was provided by family labour on the small holdings whereas 50% of all labour utilized is hired in by the largest holdings. Given that landholders would not wish to hire in more labour than was necessary, it would appear that a figure of approximately 70 man days per cropped hectare was probably about the minimum necessary for cultivation given the current state of technology. Bearing in mind that larger cultivators devoted a higher proportion of their cropped acreage to sugarcane than smaller, with

its exceptionally high labour demand, these figures understate to some extent the greater labour intensity of cultivation on small holdings.

If we relate this back to the yields for individual crops it is clear that despite higher inputs of both animal and human labour, small cultivators were unable to maintain for hyv wheat the yield advantage achieved for local varieties.

We need now to look at the extent to which "capital" was utilised on different sized farms. Due to its indivisibility farm-wise figures provide a more appropriate picture of the individual cultivator's access to capital than per hectare figures. These are presented in the table below.

The percentage figures per farm remained almost identical to those per cropped hectare. This suggests that the per hectare figures were derived by dividing the per farm figures by average cropped area. This inevitably introduces some distortions from reality - particularly with regard to the larger landholders who could not be expected to cultivate all their land with the same degree of intensity.

Table 21
Factorwise Distribution of Costs per Farm, Muzaffarnagur, 1968/69
Size Class (acres)

Item	0-7.1		7.1-11.6		11.6-17.2		17.2-26.3		26.3 & above	
	Rs.	%	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Family Labour	557	17.4	761	15.0	893	12.7	966	10.9	1,432	9.7
Hired Labour	81	2.5	227	4.5	558	8.4	696	7.8	1,603	10.8
Total	638	20.0	988	19.4	1,397	21.1	1,662	18.7	3,035	20.5
Bullock Labour	1,264	39.6	1,790	35.2	2,221	33.6	2,864	32.3	4,015	27.1
Machinery	5	0.2	37	0.7	68	1.0	79	0.9	93	0.6
Seeds	436	13.7	990	19.5	1,087	16.5	1,611	18.1	3,465	23.4
Manures	43	1.4	60	1.2	107	1.6	175	0.2	202	1.4
Fertilizers	83	2.6	140	2.7	245	3.7	280	3.2	408	2.7
Irrigation Charges	134	4.2	247	4.9	386	5.8	530	6.0	871	5.9
Land Revenue	26	0.8	54	1.1	76	1.2	84	0.9	148	1.0
Rent of leased land	51	1.6	-	-	35	0.5	54	0.6	-	-
Depreciation	145	4.6	234	4.6	292	4.4	553	6.2	823	5.5
Interest on fixed capital	336	10.5	487	9.6	616	9.3	883	9.9	1,559	10.5
Interest on working capital	24	0.8	53	1.0	71	1.0	99	1.1	212	1.4
TOTAL	3,185		5,080		6,601		8,874		14,831	

Source: *FMS Muzaffarnagur, Table 4.11*

The biological inputs - seeds, manures and fertilizers accounted for between 17.7% of total costs for the under 7.1 acre size class, but 27.3% of total costs for the largest size class. The three intermediate groups devoted very similar proportions of their total costs to these inputs - between 21.9% and 23.5%. It would therefore seem that large cultivators were substituting these biological forms of capital for labour and animal labour in their total cost structure when compared with that of small cultivators.

We have abstracted the absolute figures for those items which represent capital investment, i.e. machinery, depreciation, and interest on working capital in order to make the presentation clearer.

Table 22
Capital Inputs per Farm, Muzaffarnagur, 1968/69

Size Class	Machinery	Depreciation	Interest on Working Capital	TOTAL	Percentage of Total costs
	Rs.	Rs.	Rs.	Rs.	%
0-7.1	5	145	24	174	5.4
7.1-11.61	37	234	53	324	6.4
11.6-17.2	68	292	71	431	6.5
17.2-26.3	79	553	99	731	8.4
26.3 & above	93	823	212	1,128	7.6

Source: *FMS Muzaffarnagur, Table 4.11*

Although in percentage terms there was not a great deal of difference in the proportion of total costs accounted for by "capital", the absolute figures show a much greater variation, with a clear monotonic relationship between farm size and the amount spent on capital. For the smallest size class this was only Rs. 174, just 15% of the Rs. 1,128 expended by the largest cultivators. The large absolute figure expended by the bigger cultivators may well have represented an indivisible item such as a tractor or thresher which could be used throughout the holding. Taken in this context the absolute figures per farm are of greater relevance than either the per hectare or the percentage figures.

There is a great deal of evidence from a wide range of sources to uphold the view that the use of capital, and of machinery in particular, is of importance on larger farms in the developed agrarian areas of India. Chadha, for instance, writing on the Punjab, tells us that "the increase in capital input (exclusive of bullock power) has far outstripped the increase in labour on large farms, both for new wheats and all crops together. On the other hand, the large dose of labour on small farms is accompanied by a less than proportionate

increase in capital input leading to a lower capital to labour ratio." [*Chadha, 1978: A87*]

There are important consequences of the distortion of factor proportions created by a poor supply of capital to small farmers. It is likely to lead to progressively lower yields compared to better endowed larger farmers - a factor we have already seen emerging in our study of hyv wheat and sugarcane.

The main conclusions to be drawn from this examination of the cost structure of the sampled farms are as follows:-

1. The highest costs per hectare were borne by the smallest, under 7.1 acre size class - mainly because of the very high cost of draught animals used in relation to their land size, and to some extent because of the higher (imputed) cost of family labour.

2. Above 11.6 acres, costs per hectare were almost identical for the three size classes, respectively Rs. 825, Rs. 817, and Rs. 817.

3. There was a direct relationship between the size of holding and the proportion of hired labour used. This reached 50% of total labour input on the largest sized farms.

4. The absolute amount attributed to capital, of one sort or another, per farm, increased with holding size.

What do these factors tell us overall about the farms in the sample? Larger farms with their greater use of hired labour and capital must have been differently organized than small farms which were dependent overwhelmingly on family labour and draught animals. It is not simply a question of difference in scale and quantity - in effect they were operating on quite different production functions - each with a different organic composition of both capital and labour. Hired labour started to become of considerable importance at the 11.6-17.2 acre size class where it accounted for 40% of the labour input. This is significant when we relate it to the findings of Chapter 5 on

the distribution of capital - that capital seemed to increase significantly at the 12½ acre size class.

Table 22 reinforces the findings of Chapter 5, showing that machinery costs for the Farm Management Sample exhibited a very large increase at the 11.6 acre point, from a total of Rs. 37 per farm from the 7.1-11.6 acre group to Rs. 68 for the 11.6-17.2 acre group - a jump of more than 80%. We might tentatively suggest that on the basis of their greater use of hired labour and capital, farms above about 12 acres, if not truly "capitalist" were at least "proto-capitalist" at this date in respect of their control over both the forces and relations of production.

Another dimension related to the nature of the farm enterprise relates to the amount of cash expenditure undertaken. In the table below we present the figures.

Table 23
Cash and Kind Expenditure by Holding Size, Muzaffarnagur 1968/69

Size Class	Cash		Kind	% of Total Expenditure paid in cash to hired labour
	Rs.	%	Rs.	%
0-7.1	605	14.1	3,685	11.07
7.1-11.6	1,167	18.7	6,225	9.5
11.6-17.2	1,784	17.9	8,185	19.0
17.2-26.3	2,203	16.1	11,472	16.5
26.3 & above	3,598	15.4	19.692	23.4

Source: *FMS Muzaffarnagur, Table 3.85*

Kind expenses were overwhelmingly important to all the farmers irrespective of size of holding. Cash expenditure ranged between 14.1% of total expenditure on farms below 7.1 acres and 18.7% on farms between 7.1 and 11.6 acres. There was no correlation in percentage terms with size of holding. But in absolute terms, and as one would

expect, the volume of cash expenditure undertaken per farm increased very significantly with size of holding, so that for the largest size class it was at Rs. 3,598, more than six times that of the under 7.1 acre group which expended Rs. 605 in cash per farm per annum.

It is significant that nearly a quarter of all the cash expenses incurred by the largest size class were expended on hired labour. This indicates that the cash nexus pervaded a considerable proportion of the labour hiring transactions undertaken by this group of big farmers. Although all cultivators expended some cash on labour hiring it was more important for cultivators with holdings above 11.6 acres, who, as we have already shown, hired in more than 40% of their total labour force. Cultivation via hired labour, along with capital accumulation are the two key factors which Utsa Patnaik used to identify capitalist farmers, and outlined in Chapter 2.

Crop production, and foodgrain production in particular, for home consumption and for sale, was the principal raison d'etre of the farm - of whatever size. In the table below are provided the average production, disposal and purchase of foodgrains for the sampled farms.

Table 24
Production, Disposal and Purchase of Foodgrains, Muzaffarnagur 1968/69

Size Class	Average Prod'n per farm quintals	Disposal per annum quintals	Disposal as a % of prod'n	Purchase per annum quintals
0-7.1	38.51	36.0	93.4	4.66
7.1-11.6	63.58	58.8	92.5	3.40
11.6-17.2	84.82	73.9	87.1	1.36
17.2-26.3	111.81	117.0	104.6	1.70
26.3 & Above	202.30	195.0	96.4	3.25

Source: *FMS Muzaffarnagur, Tables 7.1, 7.4, 7.7*

The most striking point about the table was the very high proportion of foodgrains disposed of by farmers in every holding size. It ranged from 87.1% for the 11.6-17.2 acre size class to 104.6% (sic)

for the 17.2-26.3 acre size class. (If accurate, this latter figure must be on account of pre-existing stocks held at the beginning of the year). Even the under 7.1 acre size class sold 93.4% of its foodgrain output, possibly on account of urgent requirements for cash, for example in the event of the death of a bullock or to repay loans or interest.

It is significant that the under 7.1 acre size class also made the largest purchases of foodgrains during the year - 4.66 quintals - which indicates that this group was not retaining sufficient foodgrains for its own consumption, and suggests that its sales were indeed to some extent forced.

Foodgrain production contributed only a part of the total crop production, and crop production itself was supplemented with the contribution made by livestock, principally dairying, as can be seen below.

Table 25
Contribution of Crop and Livestock Production to Total Output in 1968/69

Size Class	Av. Size of holding acres	Crops		Livestock		Total
		Rs.	%	Rs.	%	Rs.
0-7.1	4.8	6,635	81.5	1,509	18.5	8,144
7.1-11.6	9.5	13,078	87.3	1,909	12.7	14,987
11.6-17.2	14.0	17,619	89.1	2,151	10.9	19,770
17.2-26.3	20.0	25,989	91.1	2,529	8.9	28,518
26.3 & Above	32.0	45,085	91.9	3,983	8.1	49,068

Source: *FMS Muzaffarnagur, Table 4.7*

In absolute terms, and as we would expect, the value of livestock products increased with holding size, from Rs. 1,509 for the under 7.1 acre size class to Rs. 3,983 for the above 26.3 acre size class, but in percentage terms there was an inverse relationship between holding size and the contribution of livestock products to total output, ranging from 18.5% for the smallest size class to just 8.1% for the

largest. In view of the constraint imposed by limited land size on increasing crop production beyond a certain point, it is logical that small cultivators should have sought to supplement their income by diversifying into livestock husbandry such as dairying and poultry, provided that the overhead costs could be kept to a minimum. Given an abundant, and to some extent underemployed, supply of "free" family labour, the labour element of overhead costs was minimised, and indeed the returns to family labour over the farm enterprise as a whole was enhanced.

As a result of the inclusion of livestock products in the income totals the range between the income of the 0-7.1 acre size group and the 26.3 acre and above group was slightly reduced. For crops alone the largest holdings exhibited an income 6.8 times greater than the smallest holdings, whereas with livestock products included it is just six times greater. Despite this slight reduction in the range of inequality, size of landholding remained the overwhelming factor determining the gross income of the cultivators of this sample.

The net profit and farm business income figures for the farms in the sample applied to crop production alone and could therefore be expected to overstate the degree of income inequality amongst the sampled farmers.

Table 26
Net Profit and Farm Business Income per Farm, Muzaffarnagur, 1968/69

Size Class	Net Profit	Farm Business Income	Net Profit	Farm Business Income
	Rs.	Rs.	Rs.	Rs.
0-7.1	815	1,009	2,345	4,343
7. 1-11.6	1,052	1,193	5,686	9,246
11.6-17.2	957	1,062	7,650	12,473
17.2-26.3	1,134	1,223	12,313	18,964
26.3 & Above	1,202	1,281	21,795	33,245

Source: *FMS Muzaffarnagur, Table 4.2*

Taking the per hectare figures first, net income ranged between Rs. 815 per hectare for the smallest size class to Rs. 1,202 for the largest - a difference of over 47%. Although there was a tendency for net income per hectare to increase with size of holding the trend was not completely monotonic because the 7.1-11.6 acre size class had a higher net income per hectare at Rs. 1,052 than the 11.6-17.2 acre size class with Rs. 957.

For farm business income the ranking remained unchanged, but as is to be expected, the range was reduced somewhat - from Rs. 1,009 per hectare for the smallest size class to Rs. 1,281 for the largest - a difference this time of 27%. These figures covered all the crops grown by the sampled cultivators and not simply the high value crops, as was the case of our examination of wheat, paddy and sugarcane. Bearing this in mind, it is of great significance that even for the farm business income figures the size classes above 17.2 acres were realising an unambiguously higher level of income per hectare than those farmers with holdings below this level. Furthermore, the 0-7.1 acre group was quite clearly reaping a lower return per hectare on its aggregate crop production than any other size class.

The major reason for this has already been shown in our earlier examination of the cost structure, i.e. the high cost of having to

maintain a pair of draught animals incurred by small cultivators. Secondly, for the high value crops of sugarcane and hyv wheat, small farmers did not enjoy any yield advantages, unlike their situation for local wheat and paddy, where inverse relationships between size of holding and yields still existed. Indeed, for planted sugarcane, farmers with holdings above 17.2 acres were enjoying the highest yields. In view of the importance of sugarcane in the cropping pattern, particularly for larger farmers, this must have contributed significantly to raising farm business income per hectare for them.

Turning to the net profit and farm business income figures on a farm-wise basis, then for net profit they ranged from Rs. 2,345 for the under 7.1 acre size class to Rs. 21,795 for the above 26.3 acre size class. The largest size class therefore produced a net profit which had a ratio 9.3 times that of the smallest size class despite the fact that the average size of holding of the above 26.3 acre group (32 acres) was just 6.8 times that of the under 7.1 acre group (average size of holding 4.7 acres).

For farm business income the range altered somewhat. As we have come to expect, given the exceptionally high family labour input, farm business income diverged most from net profit for the smallest size class - by 85% up to Rs. 4,343 per farm. Conversely, the above 26.3 acre size class showed the least divergence between net profit and farm business income - increasing by 52.5% to Rs. 33,245. This means that for farm business income the range between smallest and largest size class declined to 7.6 - far closer to the ratio for land.

What conclusions we draw concerning the returns to cultivation depends crucially on which set of accounts we choose to use. If we take the net income figures there is a good case to be made out for saying that in view of the differences in ratio between average size

of holding and net income, larger farmers were enjoying economies of scale. However, when we remove the imputed value of family labour from the accounts and look at farm business income, the ratios were much closer to a constant returns to scale hypothesis. The divergence highlights the very great importance of family labour in the production process of small cultivators, and suggest diminishing return to this factor for this size class. This is confirmed in the table below.

Table 27
Returns to Labour, Muzaffarnagur 1968/69

Size Class	Returns per farm worker per day Rs.	Returns per male family worker per day Rs.
0-7.1	2.93	1.92
7.1-11.6	4.55	3.02
11.6-17.2	6.88	4.21
17.2-26.3	8.70	5.47
26.3 & Above	15.18	8.44

Source: *FMS Muzaffarnagur 1968/69 Tables 4.25 and 4.26*

Quite clearly, given their land constraint, small cultivators were near the limit of their ability to expand their output and income via additional labour inputs. It was only by the use of complementary capital inputs that they stood any chance of improving their income position.

At the same time, small cultivators were in the least favourable position when it came to their capacity to invest in capital, whether it was of the biological variety, i.e. seeds, fertilizers and pesticides, or of actual equipment. We have already seen that they marketed the largest proportion of their foodgrain output, purchased more grain than any other group, but had the lowest cash expenditure. These factors together point to most of their income having been required for current expenditure connected with the farm and the household, with little available for reinvestment. Their investments

on the farm would therefore need to have been financed from credit of one form or another.

Table 28
Sources and Distribution of Credit, Smallest and Largest Cultivators in 1968/69

Size Class	No of Farms	Per Farm		Per Hectare	
		Gov't Agency	Private	Gov't Agency	Private
		Rs.	Rs.	Rs.	Rs.
0-7.1	10	470	616	313	193
26.3 & Above	10	5,190	280	370	51

	PURPOSE			
	Construction	Social	Agricultural	Domestic
0-7.1	180	50	790	66
26.3 & Above	280	-	5,190	-

Source: *FMS Muzaffarnagur, Tables 3.91 and 3.92*

In the table above we give some relevant information concerning the distribution and purpose of credit for the smallest and largest size classes of cultivators. Credit provided by Government Agencies amounted to Rs. 470 per farm for the under 7.1 acre size class, whereas for the above 26.3 acre group it was Rs. 5,190 per farm - more than eleven times greater. This meant that large cultivators were in receipt of more government agency credit per hectare than small cultivators - Rs. 370 compared to Rs. 314 for the latter. The lack of access to institutional credit for small cultivators has been well documented, and it is an established fact in India generally that small cultivators are at a disadvantage with regard to established institutional sources of credit. Lipton [*1976*] in particular, has highlighted this problem. For India as a whole he found that if the supply side analysis is disaggregated one may well find that "adequate

and fairly priced farm credit overall is an illusion, created by averaging (a) too much, too cheap credit for the big farmers (with wealthy relatives, access to lending institutions, and in general market and political power) and (b) too little, too dear credit for small farmers". He found that of institutional credit disbursed in 1969/70 "only 27% went to farmers cultivating less than two hectares, although they farmed 80% of the arable land". [*Lipton, 1976: 6543*] As a result, private credit arrangements - usually with moneylenders, are of much greater importance to small cultivators. In this instance they accounted for Rs. 616 per farm compared to Rs. 280 for the largest size class, representing respectively Rs. 195 and Rs. 51 per hectare.

The purposes to which these loans were put were more diverse for the small cultivators and included Rs. 66 for domestic purposes and Rs. 50 for social expenses. Rs. 180 was used on construction and Rs. 790 for agriculture. For large cultivators Rs. 280 went on construction - the amount borrowed from private sources - but the entire Rs. 5,190 per farm borrowed from government agencies was used for agriculture. In terms of both high aggregate incomes and their access to credit, large cultivators were in a much more favourable position to reinvest in their farms than small cultivators.

Given earlier comments on the need for capital complements in order to reap the maximum advantage from the land, particularly since the introduction of high yielding varieties of wheat, then if large cultivators continued to invest in agriculture at this rate, they would inevitably soon reap the economies of scale which come of investment in large indivisible pieces of capital equipment such as tractors.

CONCLUSIONS

This examination of the Farm Management .Study data for Muzaffarnagur District in 1968/69 has provided a number of important findings of relevance to the dynamics of poverty and inequality generation in the Western Region of UP.

A considerable amount of space was devoted to looking at wheat cultivation because it is this crop above all which has been at the heart of the so-called "Green Revolution". We were fortunate in having data on wheat yields and costs for the year 1971/72, so were able to show how an inverse relationship between the yield of local wheat and size of holding in 1967/68 had disappeared for hyv wheat by 1971/72. Furthermore, we demonstrated how the pattern of inputs has altered, so that whereas they were dominated by a combination of human and animal labour in 1966/67, by 1971/72 fertilizers and capital had replaced a considerable proportion of the animal labour in total input costs. Hired labour also increased in importance over this period - indicating changes in the relations of production.

With their larger land size, bigger cultivators were the main beneficiaries of these changes. They were able to generate higher absolute incomes and had the resources to reinvest in capital inputs for agriculture - further enhancing their income generating capacity, and hence inequalities.

Planted sugarcane, a crop of great importance in the cropping pattern of Muzaffarnagur District, although less so in the Western Region as a whole, demonstrated a pattern of yields and returns biased towards larger landholders, who were better able to invest in the important complementary inputs of irrigation and fertilizers. The returns to planted sugarcane cultivation, as measured by farm business

income, showed a marked and unambiguous direct relationship between size of holding and income.

We contrasted the advantages of larger cultivators in the cultivation of hyv wheat and planted sugarcane, with the cultivation of paddy and ratoon sugarcane. Paddy is a crop where the application of the hyv package of practices has been much less successful, and is also much less easy to mechanise than wheat. In 1968/69 it was still reliant upon the traditional inputs of human and animal labour for its successful cultivation, and it is significant that it still exhibited an inverse relationship between yields and holding size. Similarly, there was little that cultivators could do to alter the technique of cultivation of ratoon sugarcane whatever their resource base, and it is not surprising that yields and income varied little by holding size. Overall, therefore, it is wheat and planted sugarcane, with their scope for innovation, that were the two crops capable of generating high and increasingly unequal levels of income.

Having examined these individual crops we then turned to the farm enterprise as a whole, and showed the increasing importance of hired labour on the farms of larger cultivators. We also mentioned the larger proportion of cash expenditure undertaken by cultivators, particularly on hired labour - an indication perhaps of the contractual nature of their labour hiring - and possibly a pointer towards a "capitalist" production relationship, where both the labourer and the hirer entered into a transaction which depended solely upon cash rather than the ties and obligations of traditional agriculture.

Another important aspect looked at was credit where it was found that large cultivators dominated the cheap credit provided by government agencies, whereas small cultivators, while able to obtain

some credit from government agencies, were also very dependent upon private moneylenders. This was a further factor enhancing the capacity of large cultivators to invest productively in agriculture and so enhance their economic position.

When we looked at the returns to cultivation we found that despite the larger availability of free family labour on small farms, their farm business income per hectare was nearly 27% below that for the largest cultivators. This exacerbated the pre-existing inequalities generated as a result of differential landholding size, so that the range of inequality between the aggregate farm business income of the smallest and largest cultivators was in fact greater than that for land. This was the consequence of the high yields enjoyed by large cultivators for hyv wheat and planted sugarcane. Not surprisingly, therefore, livestock products were of proportionately greater importance to smaller than to larger cultivators, so that if they are included in the total income figures the range of income inequality between the smallest and largest cultivators was almost identical with that for land.

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Throughout the 1970s the changes set in train by the introduction of the Green Revolution package of practices continued to have an impact on the agriculture of the region. The index of multiple cropping increased from 138.34 to 141.45 between 1971 and 1977 as cultivators utilised their land with increasing intensity. At the same time, the value of ouput per hectare of net cultivated area continued to increase, from Rs. 18.22 in 1971 to Rs. 19.72 in 1977 and the value of output in Rupees per month of cropping activities

increased from 2.22 to 2.29 over the same period. [*Ray, 1985: Table 17*]

With an increase in the density of rural population per 100 hectares of cultivable area from 351 in 1971 to 387 in 1977, the number of rural workers per 100 hectares of net cultivated area also increased, from 90.91 to 104.50, so that the value of output in Rs. per crop producing rural worker actually declined - from 20.04 Rs. in 1971 to 18.87 Rs. in 1977. [*Ray, 1985: Table 17*]

The use of modern inputs continued to accelerate. In particular, there was a tremendous increase in the use of chemical nutrients - from an average of 22.24 kgs. per hectare in 1971 to 39.33 kgs per hectare in 1977. There was also a big increase in tubewell irrigation. Whereas in 1971 it had accounted for 41.65 of net irrigated area by 1977 this had risen to 52.5% - an increase of nearly 24%. This was accompanied by a slight decline in canal irrigation - from 35.59% to 31.89% of net irrigated area. [*Ray, 1985: Table 21*]

During this period there was a decline in the average size of holding. 1.36 (3.3 acres) to 1.27 hectares (just over 3.0 acres). There was also a slight increase in the percentage of holdings of less than one hectare size class from 59.4% to 61.2% of the total, and a decline in holdings above 10 hecs. from 0.68% to 0.49% of the total. However, despite these changes there remained in the region as a whole considerable stability in the distribution of holdings and area between 1971 and 1977. [*Ray, 1985: Table 22*]

The available evidence points towards a progressive capitalization and commercialisation of agriculture in Western UP, with the introduction of high yielding varieties of wheat, and improved sugarcane leading to increased yields for bigger landholders.

They had better access to inputs and greater ability to purchase those inputs than smaller cultivators. They invested in deepening their capital base, and turned increasingly to labour hiring. On the criteria put forward by Utsa Patnaik, and outlined in Chapter 2, they can be identified as capitalist farmers.

At the same time, there was a continued growth of market orientation - both in terms of inputs and in the marketing of crops. Rich and capitalist farmers gained from this as a result of their better resource position and greater ability to time their marketing to take advantage of seasonal price changes. All these factors combined could be expected to lead inevitably to a progressive alteration in production relationships towards a polarisation between capitalist farmers owning and controlling the means of production on the one hand, and a class of landless agriculture labourers on the other, as small cultivators were unable to compete in an increasingly commercialised agricultural environment. However, at the same time, the opportunities for supplementing their income from cultivation with that from wage labour on progressive high productivity farms would continue to guarantee the existence of a substantial class of middle peasantry.

The implications of the foregoing analysis of the Farm Management Study data for Muzaffarnagur District are clear. We can expect inequalities in incomes and in capital to have increased over time, and for larger cultivators to have continued consolidating their position as the dominant section of rural society.

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CHAPTER 7

THE FARM IN EASTERN UP

THE ECONOMICS OF FARM MANAGEMENT - DEORIA DISTRICT

1. PADDY CULTIVATION
2. WHEAT CULTIVATION
3. SUGARCANE CULTIVATION
4. THE FARM ENTERPRISE AS A WHOLE IN DEORIA

CONCLUSIONS

REFERENCES

This chapter has several aims. In the first place, using the Farm Management Survey for Deoria District, and a similar format to that employed for Muzaffarnagur in Chapter 6, we shall examine crop production and the returns to cultivation, and thereby show the potential for differential income generation among cultivators with different sized holdings. But, as already hinted at in the introduction to chapter 6, there is also the wider aim of presenting further evidence to demonstrate our thesis that the production relations in Eastern UP can most usefully be characterised as semi-feudal.

Deoria District is at the extreme North-east of the State, bordering on to Bihar. It has mainly fertile alluvial soil, ranging from clay to sandy loam. Rainfall is some of the highest in the state, ranging between 160 cmms and 180 cmms. per year of which more than 80% falls between the second half of June and the end of September - the kharif season. [*Board of Revenue, 1973: 16*]

The Farm Management Study of Deoria District used the same format and methodology as that employed for Muzaffarnagur District. The District of Deoria was divided into two zones according to cropping pattern. The tehsils of Padrauna and Hata, where paddy and sugarcane were the most important crops, were included in Zone I, and the tehsils of Deoria and Salempur, where paddy, irrigated sugarcane, wheat and barley were the important crops, in Zone 2. The study extended over 150 farms spread over 15 villages, 10 farms per village, of which 8 were from Zone 1 and 7 from Zone 2. The farms were divided into five strata each cultivating about 20% of the land. But as this provided too few farms in category 5 they were amalgamated

with category 4. [*Govt of India, 1968/69: preface*] The resulting size classes were as follows:-

Hectares	Acres	Distribution of holdings in Deoria District	
0-01-1.04	0-2.6	0-2.4	75.6
1.05-1.8	2.6-4.3	2.4-4.8	14.1
1.8-3.07	4.3-7.6	4.8-7.2	5.1
3.07 & Above	7.6 & above	7.2 & above	5.0

This selection of size classes reflected the much larger percentage of very small holdings found in Eastern UP than in the Western Region. In the table we also provide the percentage of holdings that fell into approximately similar size classes for the district of Deoria in 1970-71. [*Board of Revenue, 1974: 143, 353*] This is almost identical with that for the region as a whole, with more than 75% of holdings under 2½ acres.

Although a larger proportion of the net area was irrigated in Deoria than for the Eastern Region as a whole (48.3% compared to 39.8% for the latter [*Board of Revenue, 1974: 143, 356*], irrigation resources in the District were in fact poorly developed, consisting mostly of non-masonry wells - which collected percolation water - and some tubewells. [*Govt of India, 1968/69: Ch. 1*] Rural population density was amongst the highest in the state in 1971 with a total of 59 people per 10 hectares of arable land. [*Board of Revenue, 1973: plate 17*] In 1961 more than 30% of the population were under 10 years of age, and at the time of the Farm Management Survey child labour still accounted for 12% of the workforce. The livestock in Deoria were described as being non-descript, tiny in size, of poor quality and of low efficiency". There were 284 head of livestock for every 100 hectares of land, so that competition for food between the human and livestock population was intense. [*Govt of India, 1968/69: Ch. 1*] Together, these factors paint a picture of a poor and

backward area of the State, quite different from the prosperous and advanced district of Muzaffarnagur examined in the previous chapter.

In Deoria District as a whole a large variety of crops were grown in 1968/69. Cropping intensity correlates with rainfall, so that whereas in 1966/67, a year of low rainfall, it was 136, in 1968/69 a year of high rainfall, it was 154. Kharif crops predominated - covering 63.3% of gross sown area, whereas rabi crops covered just 36.5% [*Govt of India, 1968/69: Ch. I*]

Paddy was the most important crop in the district, covering a total of 36.5% of total cropped area in 1968/69. This was very close to the 34.1% of area under paddy for the Eastern Region as a whole in 1970/71. [*Board of Revenue, 1974: 146, 356*] It is mainly a rain-fed crop - in Deoria only 2.7% of its area was irrigated - comparable with the 2.4% for the region as a whole. Wheat was the second most important crop in the District, covering 14.6% of gross sown area, of which 70% was irrigated in 1968/69. This was rather less than for the Eastern Region, with 23.7% of total cropped area under wheat, of which 78% was irrigated in 1970/71. [*Board of Revenue, 1974: 146, 365*]

The major difference between the cropping pattern of Deoria District and the Eastern Region of the state lay in the importance of sugarcane cultivation. In Deoria it covered 12% of total cropped area of which just over half was irrigated, whereas in the Eastern Region as a whole sugarcane accounts for just 3.6% of total cropped area (of which 70% was irrigated). [*Board of Revenue, 1974: 146, 365*] There are historical reasons for this. Deoria lies in an area where large-scale sugar mills were set up by, in the first instance, European-owned trading firms during the 1890's, although they later came to be owned by indigenous capitalists. [*Commander, 1985: 510*] By 1965 there were 14 sugar mills in the district which purchased

substantial quantities of cane as raw material for the manufacture of crystal sugar. [*Gupta & Majid, 1968: 10*]

In the table below we present the cropping pattern by size of holding for the sampled households. As we see from the table, barley, peas, arhar, maize and wheat mixture were also important crops of the district.

Table 1
Cropping Patterns by Size of Holding: Deoria 1968/69

	0-2.6	2.6-4.3	4.3-7.6	Above 7.6	All Farms
Early Paddy	19.4	16.6	18.7	19.1	18.8
Late Paddy	3.1	2.9	5.0	7.0	6.0
Kodo	2.6	2.4	2.7	1.0	1.6
Maize	7.5	7.8	5.7	4.1	4.9
Wheat	26.0	23.8	24.6	22.4	23.1
Barley	5.2	3.3	4.7	3.4	3.7
Wheat Mixture	3.6	3.3	2.5	2.9	2.9
Arhar	11.1	12.3	10.5	8.6	9.5
Others	2.2	6.6	6.2	6.9	6.5
Total Cereals	80.6	78.8	80.6	75.4	76.9
Arhar	-	-	-	0.3	0.2
Peas	2.2	3.8	3.6	4.0	3.8
Gram	0.4	1.0	1.2	1.4	1.2
Total Pulses	2.6	4.7	4.8	5.7	5.3
Vegetables	-	0.8	0.5	0.4	0.4
Potato	0.1	-	-	0.2	0.1
Total Vegetables	0.1	0.8	0.5	0.6	0.6
Oil Seeds	-	0.2	-	0.6	0.4
Sugarcane Planted	9.0	11.3	9.0	10.6	10.3
Sugarcane Ratoon	4.2	3.9	4.5	6.6	5.8
Other Non-Food Crops	13.6	0.5	0.7	0.7	0.8
Total Non-Food Crops	16.8	15.8	14.2	18.4	17.3
Cropping Intensity	144.2	138.11	137.05	125.43	129.53

Source: *FMS Deoria 1968/69, Table 3.8*

Overall, 82.7% of total cropped area among the sampled farms in Deoria was under food crops. This compared with just 52.1% in the Muzaffarnagur sample. Despite this very high proportion of land under food crops, Deoria is part of a region that was chronically deficit in foodgrain. [*Gupta & Majid, 1968: 10*] Although Deoria does not fall within the 13 districts that Tyagi [1974] pinpointed as exhibiting a negative growth rate in foodgrains between 1964/65 and

1970/71, the poor performance of rice yields generally, compared to wheat, and the importance of rice in the cropping pattern must have contributed towards the need for such a large proportion of total cropped area to be reserved for food crops. The other key factor, of course, is the extreme pressure of population on the available land.

To a large extent of course, cropping pattern is determined by climatic conditions. But the provision of irrigation in particular can do much to facilitate the cultivation of crops such as high yielding varieties of wheat. C.H.H. Rao cited this constraint as inhibiting the spread of the new varieties of wheat to the Eastern Districts of UP and their substitution for less productive foodgrains during the early 1970's. [*Rao, 1976: 123*] However, to be successful hyv wheat also requires considerable inputs of chemical fertilizers. In the absence of this complementary input cultivators may still grow inferior crops such as barley instead. Rao cites a study of a village in Azamgargh District of Eastern UP carried out in 1972/73 where 66% of the cultivated area was irrigated, and where despite the introduction of the hyv wheat programme farmers were growing more barley than wheat in the rabi season. Most of the farmers were poor with few economic resources and were unable to meet the needs for costly improved seeds and fertilizers associated with hyv cultivation. [*Rao, 1976: 121*]

Another factor in choice of cropping patterns concerns the underlying labour endowment. Rao quotes another study, this time from Deoria District itself, from a village where the proportion of area irrigated increased steeply between 1964-65 and 1970-71 from just 7% to 37% of cultivated area. Despite this increase in irrigation and the introduction of modern varieties of wheat, the proportion of area under wheat increased only marginally from 26% to 27%, whereas

the proportion of area under paddy increased from 12% to 24% during the same period. This was despite the fact that rice yield per acre during this period increased by just 15% whereas that for hyv wheat increased by 75%! Rao maintains that the underlying rationale for this lies in the extremely labour intensive as well as water intensive nature of the paddy crop - enabling cultivators to use some of their "surplus" family labour. [*Rao, 1976: 121*] We shall consider labour intensity more fully when we look at the cultivation of individual crops.

Returning to the table, we notice that it exhibited a very diversified cropping pattern for households in all size classes. The kharif crop, paddy, early and late was the most important crop, covering an average of 24% of total cropped area, which was rather less than the 34% for the Eastern Region as a whole. The over 7.6 acre size class had the biggest percentage of its land under paddy - 26.1% of total cropped area, and the 2.6-4.3 acre size group the smallest percentage at 19.5% of total cropped area - mainly because it had a larger percentage of its area under other kharif crops.

An interesting point that arises from the table is that the proportion of total cropped area under the rabi cereal crops, maize, wheat, barley, wheat mixture and arhar, was inversely related to the size of holding. Between them these crops accounted for 52.9% of total cropped area for the 0-2.6 acre size class, compared to 41.4% for the above 7.6 acre size class. Small cultivators were therefore attempting to maximise their food crop output by sowing a larger rabi crop, and this is reflected in the cropping intensities, which declined with increasing holding size, from 144.2 for the smallest holdings to 125.43 for the largest. Of the rabi crops, wheat was by far the most important, covering an average of 23.1% of area for all

farms - very similar to the 23.7% of the region as a whole.

Sugarcane was not only the most important cash. crop grown by the sample, but was the third most important crop grown by these households, accounting for a total of 16.1% of total cropped area of which 10.3% was planted sugarcane and 5.8% ratoon. This compares to just 3.6% of total cropped area under sugarcane for the Eastern Region as a whole, and reflects the historical importance of sugarcane production in Deoria District. Unlike the Western Region, where it was and still is dominated by the informal sector of gur production, sugar production in Deoria was and still is dominated by the sugar mill sector.

The proportion of total cropped area under sugarcane was directly related to the size of holding - ranging from 11.2% on holdings below 2.6 acres to 17.2% on holdings above 7.6 acres. This may well be because the value of inputs per acre, particularly irrigation and fertilizers were much higher for sugarcane than for any other crop - even excluding "free" inputs of family labour. [*Gupta & Majid, 1965: 25*] There is also the fact that the smaller the holding the less able is the cultivator to release land from the imperative of producing food crops for pressing home consumption needs. Despite this, given the overwhelming predominance of small holdings in the district, the sugar mills were inevitably very dependent upon petty producers for their supplies of raw cane.

As in the case of Muzaffarnagur, we have selected the three principal crops of paddy, wheat and sugarcane to examine in detail.

1. PADDY CULTIVATION

Paddy in Eastern UP is almost totally dependent on rainfall. For ideal conditions the crop requires 30 cm. per month spread over at least three consecutive months as a minimum. However, the Eastern Districts of UP fall within an area which has this quantity of rainfall for only two consecutive months - in July and August, with between 20 and 30 cms. in September. In good years this provides very nearly ideal conditions, but unfortunately there is a very high variability of rainfall in the region resulting in occasional droughts and more frequent floods. Indeed, in 1971 UP, along with Bihar and Madhya Pradesh recorded one of the poorest yields for rice production in the sub-continent - around 70% of the all- India average. [*Min. of Ag. 1976: 56*]

As we see from Table 1, early, or aus paddy, was more important in the cropping pattern of all farms than late, or aman paddy; the former covered 18.8% of total cropped area, whereas the latter covered just 6.0%. However, late paddy did increase in importance as size of holding increased, ranging from just 3.1% on holdings below 2.6 acres to 7.0% of total cropped area on holdings above 7.6 acres. Early paddy is sown between May and August and harvested between September and December. Late paddy is sown between June and August and harvested between November and February. According to Rudra, writing on West Bengal, the reason why early paddy constitutes "an essential part of the cropping pattern of most farmers resides in the differential timings of these two paddies. Land vacated by early paddy is sown with winter (rabi) crops. Late paddy is harvested too late for this use. A farmer thus has to cultivate at least that much land with early paddy as he desires to sow with winter crops." Secondly ". . . the intitial cash requirements of the farmers for the

winter crops are met by the money receipts resulting from the sale of early paddy which is typically sold immediately after the harvest and never stocked for any length of time. [*Rudra, 1983: 2168*] If these factors also applied to Eastern UP, and Rudra does imply that they are applicable throughout Eastern India, then the greater importance of early paddy for smaller cultivators is quite explicable, and it certainly fits in with the larger area of land sown with rabi crops and consequent higher cropping intensities of small cultivators.

In our subsequent examination of yields, costs and returns to paddy cultivation we shall concentrate on early paddy. This was largely unirrigated, (only nine farms out of the entire sample (eight in the largest group) had any irrigated paddy at all at this date). It was sown immediately after the heavy monsoon shower. Two to four ploughings were done and the seed was broadcast. Pulverization of the field was carried out after 3 to 4 weeks. [*Govt of India, 1968/69: Ch VI*] As already stated, the success of the crop depends entirely on the regularity of the rains.

In the table below we present the yields per hectare of early and late paddy by size class.

Table 2
Paddy Yields: Deoria 1968/69

Size Class (acres)	Early Paddy quintals per hec.	Late Paddy quintals per hec.	HYV Paddy quintals per hec.
0-2.6	15.02	11.88	22.28
2.6-4.3	14.80	15.19	18.82
4.3-7.6	15.18	14.21	19.20
7.6 & Above	14.44	8.94	15.71
All Farms	14.67	10.12	19.00

Source: *FMS Deoria, Table 5.10*

With an average yield of 14.67 quintals per hectare for early paddy and down to 10.12 quintals per hectare for late paddy, these

yields were very low by any standards. They compared very badly with the average of 24.79 quintals per hectare for the sample households in Muzaffarnagur, and even with the all-India figure - a study of average rice yields carried out by the Department of Agriculture for the years 1967/71 showed that average rice yield for all rice regions for traditional varieties, without the use of fertilizers was 24.93 quintals per hectare. [*Dasgupta, 1977: Ch. II*]

The figures in the table above also include the high yielding variety crop. However, because irrigation was undeveloped, and most farms were small and fragmented, hyv programmes were still in their infancy at the time of this farm management study. Even the average yield for high yielding varieties of paddy - 19.00 quintals per hectare was comparatively very low, particularly so when compared with the all-India figure of 29.13 quintals per hectare for hyv cultivation without fertilizers. [*Tyagi, 1974: 44*] In his study of 13 foodgrain deficit districts of UP Tyagi blames poor rice yields on inadequately developed irrigation facilities, and the National Commission on Agriculture backs this up. Because the September rainfall is low, the crop suffers for want of water at a crucial time in its development. However, there is also the problem of flooding in July and August, causing serious drainage problems and consequent waterlogging of the crop, inhibiting nitrogen uptake from the soil. The National Commission considered that the problems of poor rice yields in Eastern UP could be overcome if the excess rainfall of July and August could be stored in order to provide supplemental irrigation during September. [*Min. of Ag. 1976: 56*]

The extreme variability to which rice yields are subject is illustrated in the table below:

Table 3
Max. and Min. Yields of HYV and Local Paddy, Deoria 1968/69
(quintals per hec)

Size Class	HYV Paddy		Local Paddy	
	Min.	Max.	Min.	Max.
0-2.6	10.00	41.67	4.35	22.22
2.6-4.3	10.00	30.76	4.16	18.00
4.3-7.6	9.84	41.67	5.14	35.71
7.6 & Above	7.11	36.36	6.00	20.00
All Farms	9.24	37.62	4.91	23.98

Source: *FMS Deoria, Table 8.9*

[Note: The figures for local paddy are averages of early and late paddy yields.]

While the maximum yields are acceptable for both high yielding and local paddy, the minimums for both crops - and local paddy in particular - were very low indeed. During the year 1968/69 this was due to the combination of an epidemic which required fresh sowings and also to the lack of irrigation. [*Govt of India, 1968/69: Ch V.*] This highlights the extreme vulnerability of cultivators, particularly small cultivators raising local paddy, in this district, and indeed in much of the Eastern Region of UP, to "natural agricultural disasters".

Let us now examine the yield figures by size of holding. Returning to Table 2, and looking first at the three paddy varieties together, there is only one aspect of the yield distribution that they all have in common - in every instance the lowest yield was recorded in the above 7.6 acre size class. The clearest indication of an inverse relationship between size of holding and yield, although not monotonic, came for hyv paddy, with the 0-2.6 acre size class exhibiting the highest yield by a considerable margin. For early paddy there was little variation in yield by size class. For late paddy, however, the variation was very large, with the 2.6-4.3 acre size class having the highest yield at 15.19 quintals per hectare and

the above 7.6 acre size class the lowest at 8.94 quintals per hectare.

We wish to examine the extent to which yields correlated with costs, particularly with regard to the cultivation of early paddy and hyv paddy. These costs are presented in the table below:

Table 4
Costs per hectare of early paddy (unirrigated) and hyv paddy, Deoria 1968/69

Size Class acres	Early Paddy Rs. per hectare	HYV Paddy Rs. per hectare
0-2.6	1,146	1,342
2.6-4.3	1,042	1,148
4.3-7.6	1,061	1,200
7.6 & Above	960	969

Source: *FMS Deoria, Tables 5.9 and 8.5*

For early paddy there was an inverse relationship overall between size of holding and costs per hectare, although it was not monotonic. Costs ranged between Rs. 1,146 per hectare for the smallest size class to Rs. 960 for the largest size class. High yielding varieties of paddy were more expensive to grow for all size groups, particularly so for the smallest size class, whereas the difference betwen the costs of traditional and hyv varieties were only marginal for the largest size class. Again, there was an inverse relationship between size of holding and costs per hectare, although it was not monotonic - with the 4.3-7.6 acre group once more exhibiting higher costs than the 2.6-4.3 acre group.

If we compare these cost figures with those for yields in Table 2, then for both early paddy and hyv paddy there was a direct correlation between costs per hectare and yield. Unfortunately, we do not have data on the composition of input costs for this crop - however, when we look at the breakdown of costs of cultivation in general we shall be able to draw some conclusions.

However we do have some comparative cost figures for rice cultivation in Varanasi for the year 1968 which are presented in the table below.

Table 5
Cost of Cultivation of Rice per Acre in Varanasi, 1968

	HYV's		Local	
	Rs.	%	Rs.	%
Seed	15.86	6	33.49	13
Organic Manure	17.37	6	7.35	3
Fertilizer	25.15	9	6.21	2
Irrigation	8.91	3	8.76	4
Pesticides	1.37	1	0.11	1
Hired Labour	90.24	32	91.00	37
Other Expenses	123.65	44	101.70	41
Total	282.37		248.62	

Source: *AERC Allahabad, HYV Programme in Varanasi District, 1968*

The largest cost for both hyv's and local varieties was incurred by hired labour - 32% and 37% respectively. For hyv's, fertilisers came next in importance - contributing 9% compared to just 2% for local varieties. If we add on the 6% for organic manures for hyv's this came to a total of 15% for fertilizers and manures together, compared to just 5% for local varieties. There is no reason to expect that a similar cost pattern would not be incurred in Deoria during the same year. Indeed, as we show in the table below, there was a very large labour input into rice production among the sampled households in Deoria district. However, as we shall show later, much of this, particularly for small cultivators, was provided by family labour.

Table 6
Man Days per Hectare and Return per Man Day, Paddy, Deoria 1968/69

Size Class	Man Days	Return per Man Day
		Rs.
0-2.6	139	0.14
2.6-4.3	117	0.64
4.3-7.6	116	0.03
7.6 & Above	79	-0.02
All Farms	94	-

Source: *FMS Deoria, Tables 5.3, 5.16*

There is a very great difference between the labour input into rice cultivation between small cultivators with holdings below 2.6 acres and large cultivators with holdings above 7.6 acres - 139 and 79 man days per hectare respectively. This represented a labour input which for small cultivators was more than 75% greater than that of the largest cultivators. Despite this enormous difference, the small cultivators were only achieving 4% more yield for their early paddy, and 40% more yield for their hyv paddy.

To successfully cultivate hyv paddy it must be weeded and transplanted at the right times, but also fertilizers and pesticides need to be applied at timely intervals and in adequate doses. The number of small cultivators growing hyv's among the farm management sample for Deoria was in fact very small - only 12 farms, compared to 27 in the group with holdings above 7.6 acres. It was no doubt the difficulty of obtaining these inputs and of paying for them which inhibited the adoption among small farmers - for they had potentially the most to gain from their cultivation - a yield increase of 48% at an increased cost of 17%. The fact that small cultivators had "surplus" family labour available for this highly labour intensive crop would seem to make hyv rice cultivation a very attractive proposition to them if only they were in a position to obtain the

necessary complementary inputs - which, as we shall show subsequently, they were not.

Large cultivators, by contrast, were much more likely to be in a position to obtain, and to afford the complementary inputs necessary for hyv rice cultivation, but they were also much more likely to have to hire in labour - and thus incur a real cost. This was indeed reflected not only in much lower labour input, but also in the negative return per man day of -0.02 rupees for rice cultivation overall. Given the low yields in the district, it therefore actually cost a cultivator money to apply more labour to his rice cultivation in general, and it was therefore not worthwhile for him to intensify cultivation without some guarantee of yields which would more than offset the extra cost. From his point of view it would be far more advantageous to let out some of his land on a share-cropping basis, and thus derive the large "free" inputs of family labour which his sharecroppers could provide on small parcels of land.

This of course, raises the important and interesting question, first posed by Bhaduri [*1973*] of the extent to which semi-feudal production relations, and sharecropping in particular, inhibited the modernisation of agriculture and consequent yield enhancing improvements in areas such as Eastern UP, or whether, as Ashwani Saith [*1978*] believes, the major constraint to the spread of yield enhancing agricultural innovations and investment was the distribution of land itself with its bias towards small holdings - too small to take advantage of new technology, or even to invest in irrigation.

By far the majority of the paddy grown by the sample of households at the date of the Farm Management Study was unirrigated early paddy. We shall therefore concentrate on this crop in our brief examination of income below.

Table 5
Gross, Net and Farm Business Income per Hectare of Early Paddy, Deoria 1968/69

Size Class	Gross Income	Net Income	Farm Business Income
acres	Rs.	Rs.	Rs.
0-2.6	1,165	19.9	588
2.6-4.3	1,118	75.1	575
4.3-7.6	1,064	3.2	448
7.6 & Above	958	-1.6	376
All Farms	1,011	10.5	427

Source: *FMS Deoria, Tables 5.11, 5.14, 5.17*

The first point to make concerns the tremendously large differential between the average return on paddy cultivation in Deoria as compared with Muzaffarnagur. For Muzaffarnagur Gross Income per hectare was Rs. 1,669 compared with Rs. 1,011 for all farms in Deoria District. Net Income in Muzaffarnagur was Rs. 656 compared with just Rs. 10.5 for Deoria; and Farm Business Income Rs. 1,223 in Muzaffarnagur compared with Rs. 427 for Deoria. This was despite the fact that there was very little difference in average costs of paddy cultivation between the two districts. The high income differential is therefore entirely the result of the very much lower yield averaged in Deoria - 14.67 quintals per hectare for early paddy, compared to 24.93 quintals per hectare in Muzaffarnagur.

Looking in detail at the table, there was a quite clear inverse relationship between Gross Income per hectare and size of holding. This was lost for the net income figures, with the 2.6-4.3 acre size group exhibiting by far the highest figure at Rs. 75.1 per hectare. Overall, net income per hectare for early paddy was only Rs. 10.5 - an extremely low figure when compared with the Rs. 656 for all farms in Muzaffarnagur. However, the net income figures included all costs of production, including family labour and the imputed rental value of

owned land, and were not of a great deal of relevance to the real situation of peasant cultivators. They were far more likely to see their own returns in terms of farm business income which excluded both these items. Farm Business Income retained the inverse relationship between size of holding and returns, ranging from Rs. 588 per hectare for the smallest size group to Rs. 376 for the largest. This was a variation of 56%, whereas there was only a 4% variation in yield. Furthermore, we know that costs per hectare were actually lower for the largest size class. The explanation must therefore be the large inputs of family labour used by small cultivators which were excluded from the farm business income figures. This is upheld by the very large labour input already identified in Table 6, for small cultivators.

Intense "self-exploitation of family labour on small farms" has long been acknowledged as the main reason for higher productivity and farm business income on small farms in backward areas of India. But rather than being an indication of greater efficiency it reflects the precarious existence these petty producers face. As Krishna Bharadwaj has pointed out, "petty owners continue to hold on to their small parcels of land even when their net income accruing from land is meagre. For the alternative they face, in the event of loss of their land is the precarious state of being landless labourers or hapless tenants . . . The non-availability of assured and continuous employment induces petty producers to cling to their tiny holdings and cultivate them intensively with the help of family labour. This is relfected in the high intensity of cultivation, relatively higher land productivity but lower labour productivity on small rather than on large farms - and intense self-exploitation of family labour." [*Bharadwaj, 1985: 17*]

Despite the big variation between the farm business income per hectare between small and large cultivators, the figure for all farms was in fact very low when compared to that for rice cultivation in Muzaffarnagur - Rs. 427 compared to Rs. 1,223 in the latter district.

Given the much greater importance of rice in the cropping pattern in Deoria District, such a low return per hectare must have inhibited the capacity of cultivators, of whatever size, to reinvest productively in agriculture. This gave rise to a vicious spiral of low productivity, low output and income and low investment. In the section on Muzaffarnagur we highlighted the importance of complementary inputs in raising agricultural productivity. The very great need for these inputs in Deoria district was reflected in the extremely low labour productivity recorded in Table 6, indicating diminishing returns to this factor.

2. WHEAT CULTIVATION

Wheat was the main rabi crop in Deoria, covering 23% of total area for all farms. In the table below we present the proportion of gross sown area under irrigated and unirrigated wheat, along with the percentage of the total wheat crop that is irrigated.

Table 8
Percentage of Gross Sown Area under Wheat, Irrigated and Unirrigated, Deoria 1968/69

Size Class Acres	Wheat Unirrigated % to Gross Sown Area	Wheat Irrigated % to Gross Sown Area	Percentage of Total Wheat Crop Irrigated
0-2.6	13.63	12.36	47.6
2.6-4.3	4.64	19.15	80.0
4.3-7.6	2.98	21.63	88.0
7.6 & Above	2.30	20.06	90.0

Source: *FMS Deoria, Tables 5.52 and 5.35*

Unlike Muzaffarnagur, which had the advantage of a well-developed irrigation infrastructure, Deoria District at this date was not well endowed with irrigation facilities. It is therefore not surprising that the use of high yielding varieties of wheat and their associated improved package of practices, was negligible among the sampled households in Deoria in 1968/69. Their use was confined to only 5 farms out of the entire 150 of the sample, all of which were in the largest size class. [*Govt of India, 1968/69: Ch V.*] The pertinent comparison is therefore between irrigated and unirrigated wheat.

In Muzaffarnagur over 95% of the wheat crop was irrigated, but in Deoria the percentage of the wheat crop irrigated ranged from 47.6% for the under 2.6 acre size class to 90% for the 7.6 acre and above group. This reflected the particularly poor access to irrigation already identified for the smallest size class.

Irrigation was the crucial variable determining the success of the wheat crop, and this was reflected in the differential yields for unirrigated and irrigated wheat shown in the table below.

Table 9
Wheat Yields, Unirrigated and Irrigated, Quintals per Hectare, Deoria 1968/69

Size Class acres hec.	Unirrigated Wheat quintals per hec.	Irrigated Wheat quintals per
0-2.6	12.94	24.02
2.6-4.3	11.88	20.91
4.3-7.6	10.65	20.66
7.6 & Above	15.33	18.11
All Farms	13.52	19.08

Source: *FMS Deoria, Tables 5.61 and 5.44*

Once again, the average yields for the wheat crop in Deoria were much lower than in Muzaffarnagur where the local wheat crop achieved a yield of 23.25 quintals per hectare and the hyv crop 34.82 quintals per hectare, compared to 13.52 quintals for the unirrigated crop in

Deoria and 19.08 quintals for the irrigated crop.

Looking at the distribution by size class and taking the unirrigated wheat crop first, then there was a clear inverse relationship between size of holding and yield up to the 7.6 acre level, ranging from 12.94 quintals per hectare for the under 2.6 acre group to 10.65 quintals for the 4.3-7.6 acre group. The largest 7.6 and above group shows a discrete jump in yield to 15.33 quintals per hectare. It may be that the relatively high yield achieved by the largest size class was a statistical aberration resulting from confusion over definitions of irrigated and unirrigated wheat. Whereas the smaller cultivators, whose access to irrigation is extremely limited, really did not irrigate a large proportion of their wheat crop, the largest size group who anyway irrigated 90% of their wheat, may well have partially irrigated part of the so-called unirrigated crop - so that we are not in fact comparing like with like.

For irrigated wheat the inverse relationship between yield and size of holding is quite clear and unambiguous, ranging from 24.02 quintals per hectare for the smallest size class to 18.11 quintals per hectare for the above 7.6 acre size class. As in the case of rice, this must surely have been largely the result of a more intensive labour effort on the part of small cultivators. This is certainly indicated from the figures in the table below.

Table 10
Man Days per Hectare, Unirrigated and Irrigated Wheat, Deoria 1968/69

Size Class	Unirrigated Wheat		Irrigated Wheat	
	Man Days	Return per man day	Man Days	Return per man day
0-2.6	67	5.69	153	5.37
2.6-4.3	75	4.95	117	5.41
4.3-7.6	67	3.85	104	8.45
7.6 & Above	46	21.25	102	5.43

Source: FMS Deoria, Tables 5.37, 5.50, 5.54 and 5.67

Several interesting points emerge from this table. There was not a great deal of variation in the labour input for unirrigated wheat for size classes up to 7.6 acres - all with about 70 man days per hectare. This reflected the fact that it was not worthwhile for cultivators to expend large quantities of labour without complementary inputs - particularly irrigation. The largest size class only expended 46 man days per hectare on its unirrigated wheat crop - as in the case of all other cultivators, reserving the bulk of its labour effort for the irrigated crop.

Labour inputs for irrigated wheat ranged from 153 man days per hectare for the smallest size class to 102 man days for the above 7.6 acre group, and were inversely related to size of holding as we have come to expect. The smallest and largest size groups expended even more labour per hectare on their irrigated wheat crop than on their rice crop. It was clearly worth their while to do this since the return per man day was so much higher.

The differential between the labour input of the smallest cultivators and the largest for irrigated wheat cultivation was 50% - even greater than for the rice crop. For this extra labour input small cultivators achieved a yield which was 40% above that for the

largest cultivators, much greater than the corresponding differentials for rice.

This illustrates that with irrigation, the intensified labour effort of small cultivators did in fact pay off, and provided yields that were comparable to those for local varieties in Muzaffarnagur.

C.H.H. Rao has stressed repeatedly the importance of irrigation as the crucial variable in raising wheat yields. [*Rao, 1976: 117*] One might surmise that if assured irrigation was extended throughout the Eastern Region of UP this would lead to alterations in cropping pattern in favour of wheat, and to important increases in foodgrain productivity and output.

Evidence for this is provided in a comparative study by Shrinath Singh of some modernised and traditional villages in Jaunpur District of Eastern UP during the early 1970's. In this he shows how the provision of electricity and irrigation resources led to drastic changes in cropping pattern in the modernised villages. In particular, barley which had been a major rabi crop, was replaced by new varieties of wheat. Indeed, between 1965 and 1971 wheat increased in area from just 5.5% of total cropped area to 26.1%. By contrast, in the traditional villages wheat and barley still accounted for 8.8% and 20.2% respectively of total cropped area. [*Singh, 1976: 147*]

However, this still leaves the problem of access to such capital inputs, and the distribution of the gains of such changes. Shrinath Singh stressed the importance off-farm income played in enabling farmers to invest in the new wheat technology in modernised villages. He found that this, together with size of farm to be "the most important of all the factors determining the level of modernisation". Given this, then the gains of introducing the new wheat technology

throughout Eastern UP were likely to be limited to those who could afford the back-up capital inputs - particularly adequate irrigation facilities such as powered tube-wells.

V.K. Jairath [*1979*] provides credence for this view in his study of changing production relations in a village in Hardoi district of Central UP in the early 1970's. In his study, done after the Green Revolution wheat technology had been introduced to this "semi-feudal" district, Jairath showed how the previous polarisation of the class structure between landlords and small and middle peasants had altered, with an important new class of rich and middle peasants aligning against the poor peasants and landless labourers. In particular, he showed how the HYV package of practices with its need for capital inputs such as irrigation and fertilizers tipped the balance of advantage in favour of those peasants with sufficient savings or outside sources of finance to enable them to invest in these inputs. Without access to these inputs, poor peasants continued to sow traditional varieties. The previous inverse relationship between yield and size of holding was replaced by greater productivity on larger holdings. Small cultivators therefore fell further and further behind in terms of their relative economic positions. A cycle of indebtedness, together with small plots of sharecropped land, led to eventual dispossession of the petty producers as much previously marginally held sharecropped land passed into the hands of new tenants or was taken back by its owners, who given the new profitability of agriculture preferred to cultivate it with hired labour. [*Jairath, 1979, Ch. VII*]

Given that irrigation was so poorly developed for small cultivators in Deoria, then we might expect a similar situation to have arisen with widespread introduction of hyv wheat technology.

Returning to the Farm Management Study of Deoria District, let us now look at the costs of production for wheat cultivation among the sampled households.

Table 11
Cost of Production of Wheat Cultivation, Rs. per Hectare, Deoria, 1968/69

Size Class	Unirrigated Wheat	Irrigated Wheat
	Rs.	Rs.
0-2.6	982	1,500
2.4-4.3	957	1,348
4.3-7.6	910	1,276
7.6 & Above	873	1,287
All Farms	915	1,297

Source: FMS Deoria, Tables 5.43, 5.60

Before commenting on this table we must bear in mind that it includes the imputed cost of family labour inputs. it is therefore not surprising that for both unirrigated and irrigated wheat there was an inverse relationship between size class and costs per hectare. However, for irrigated wheat this only applied up to the 7.6 acre point, for the largest holding size group had a slightly higher cost per hectare than the 4.3-7.6 acre group. Unfortunately we do not have a breakdown of this cost structure for wheat cultivation, so must wait until we look at the total costs of cultivation for the farm enterprises as a whole before any conclusions can be drawn. However, given that labour costs were included for all cultivators, it must have been due to inputs other than labour.

Although the cost of production per hectare for the smallest size was 53% greater for irrigated wheat than for unirrigated wheat, this group was in fact achieving a yield which for the former was 87% greater. Given the tremendous advantage to be gained from cultivating the irrigated crop, it is therefore significant that only 47% of its entire wheat crop was in fact irrigated - far less than for

any other size class. This points to some external constraint - either lack of finance, credit, or access to those government tubewells that did exist because of control of the water resources by more powerful larger landholders - points which have already been fully covered in Chapter 5. There is also the important point, covered fully in Chapter 4, that tenancy of one form or another was very prevalent among the under 2.5 acre class of poor peasant cultivators. That being the case, it was the landlord, not they themselves who effectively controlled access to any forms of irrigation which required capital expenditure.

More clues about inputs can be derived by looking at the returns to wheat cultivation presented in Table 12 below.

Table 12
Returns to Wheat Cultivation, Deoria 1968/69 (Rs. per Hectare)

Size Class	Unirrigated Wheat			Irrigated Wheat		
acres	Gross Income	Net Income	Farm Business Income	Gross Income	Net Income	Farm Business Income
0-2.6	1,362	380	795	2,319	819	1,477
2.6-04.3	1,327	370	733	1,977	634	1,169
4.3-7.6	1,167	257	585	2,159	883	1,342
7.6 & Above	1,860	987	1,269	1,869	582	1,040
All Farms	1,553	643	721	1,951	654	1,126

Source: *FMS Deoria, Tables 5.45, 5.62, 5.49, 5.66, 5.48, 5.65*

Taking unirrigated wheat first, we notice that the ranking by size class did not alter at all between the three income measures. In each instance the largest size class achieved the highest return and the 4.3-7.6 acre size class the lowest, with the smallest and 2.4-4.3 acre group taking up positions 2 and 3 respectively. We shall concentrate on farm business income because it included neither the imputed cost of family labour nor that of owned land. This ranges from a low of Rs. 585 per hectare on the 4.3-7.6 acre size class to a

high of Rs. 1,269 on the largest size class, which was a very marked variation and due to the supposedly high yield obtained by large cultivators. However, we have already raised the question of whether the so-called unirrigated wheat crop for this largest size class was in fact unirrigated. If, on this basis, we exclude it from our analysis there is a straightforward inverse relationship between farm business income per hectare and size of holding, due in part to the fact that the bulk of the labour used on small farms was "free family labour" and therefore did not incur a cost, and in part to the higher yields on small farms.

Turning to the irrigated wheat crop, then as we would expect, the figures for gross income, net income and farm business income were considerably in excess of the corresponding returns for the unirrigated crop due to the higher yields. Farm Business Income is the significant series. This was highest for the smallest size class at Rs. 1,477 per cropped hectare, and lowest for the largest size class at Rs. 1,040 per cropped hectare. This reflected both the differential yields between these two groups and the fact that the largest size class had higher real costs due to the need to hire labour.

If we compare these figures with the returns to paddy cultivation, then there was a very marked discrepancy; for all farms the farm business income for paddy was Rs. 247 per cropped hectare, compared to Rs. 1,126 for the irrigated wheat crop. Wheat was therefore a much more "profitable" crop, given the price structure current at the time. Whether it would remain so if large tracts of Eastern UP started to produce wheat on the same scale as in the Western Rgion - with the alteration that might bring about in the structure of cereal prices is another matter.

Although there was this huge differential between the return on rice and wheat cultivation in Deoria District, there was an equally large differential between the return to wheat cultivation in Muzaffarnagur District and that in Deoria District. The farm business income in Muzaffarnagur for all farms was Rs. 1,976 per cropped hectare for all wheat, and Rs. 2,592 for hyv wheat, compared to Rs. 721 for unirrigated wheat, and Rs. 1,126 for irrigated wheat per hectare in Deoria.

Given that by far the majority of cultivators (more than 75%) in Deoria district had holdings of less than 2½ acres, and the fact that more than 50% of their wheat was unirrigated, then the relative disparity in incomes generated in the process of cultivation becomes extremely marked.

There is no quantity of labour, if it is not accompanied by capital inputs, that is capable of generating yields, and thereby incomes, comparable with those in the Western Districts of UP, where capital, and irrigation in particular, was in greater abundance. As long as this situation prevailed, the districts of Eastern UP would continue to have comparably low growth rates in their outputs of the two principal foodgrain crops of rice and wheat.

3. SUGARCANE

Sugarcane was a particularly important crop in Deoria at this date, covering an average of 16.1% of total cropped area for all the farms in the sample. Once one of the major cane producing areas of India, Deoria District declined in importance as a result of the massive geographical reorganisation of the sugar industry which started in the 1950's. Since that time there was a marked shift in the large scale cultivation of cane to the tropical regions of India.

[*Commander, 1986: 511*] Sugarcane yields were much higher in the Peninsula compared to UP. A survey of yields over a fifteen year period, ending in 1971/72 confined to those areas where cane was earmarked for the sugar mills, showed yields for the planted crop to be of the order of 45 tonnes per hectare, and as low as 33 tonnes per hectare for the ratoon crop. This compared with a figure of 80 tonnes for sugarcane generally in Tamil Nadu and 90 tonnes per hectare in Karnataka. However, this dismal picture has to be qualified because the duration of the sugarcane crop in UP was 9 to 10 months compared of 12-18 months in the Peninsula. If the yielding capacity was reduced to an identical time scale this may also reduce the apparent disparity between UP and the Peninsula. The canes situated in the North are thin while those in the South are thick. The crop in the North is also raised with less manure and irrigation. [Min. of Ag., 1976:. 148]

Unlike Muzaffarnagur, where the informal sector of khandsari production provided the main demand for the sugarcane crop, sugarcane production in Eastern UP was dominated by the mill sector, and for the sample of households in Deoria in 1968/69 the sale of sugarcane was made ultimately to the sugarmills. As we shall see subsequently, this led to a system of dependency between cultivators and sugarmills, based upon debt.

In the table below are presented figures showing the proportion of total cropped area under planted and ratoon sugarcane, along with the percentage of total output contributed by each category.

Table 131
Total cropped area under sugarcane, and Percentage of Total Output contributed by each variety, Deoria 1968/69

Size Class	Area under Sugarcane			Percentage of Total Sugarcane Output			
acres	Planted	Ratoon	Total	Planted		Ratoon	
				%	%	%	%
0-2.6	9.0	4.2	11.2	51.9	14.1	34.5	-
2.6-4.3	1,1.3	3.9	15.2	46.5	29.61	23.9	-
4.3-7.6	9.0	4.5	13.5	65.6	4.3	28.7	1.3
7.6 & Above	10.6	6.6	17.2	43.5	18.9	33.9	3.7
All Farms	10.3	5.8	16.1				

Source: *FMS Deoria, Table 5.120*

Overall, 23% of the planted sugarcane crop cultivated by the farmers in this sample was irrigated, and 8% of the ratoon crop. By contrast, in Muzaffarnagur, virtually the entire sugarcane crop, both planted and ratoon, was irrigated. Unfortunately we do not have a breakdown by size class, however, we have used the percentage of total sugarcane output accounted for by each category to provide some idea of the extent and distribution of irrigation.

The above 7.6 acre size class devoted the largest proportion of its cropped area to sugarcane cultivation, with 17.2%, compared to just 11.2% for the under 2.6 acre size class. The planted crop was more important in every instance. As we explained in the section on Muzaffarnagur, the ratoon crop was cultivated after the planted crop had been harvested, and was a subsidiary of the original planted sugarcane.

The percentages of total sugarcane output contributed by each variety would indicate that the irrigated planted crop contributed by far the bulk of the output for all cultivators, followed by the irrigated ratoon crop - and certainly to an extent far greater than the fact that overall just 23% of the planted crop was irrigated, and

just 8% of the ratoon crop. Given this, it throws into doubt the accuracy of some of the yield figures in the table below.

Table 14
Sugarcane Yields, Deoria District, 1968-69 (Quintals per Hectare)

Size Class acres	Planted	Ratoon	Planted irrigated
0-2.6	477.7	233.2	440.2
2.6-4.3	348.4	219.4	347.1
4.3-7.6	426.9	204.2	292.2
7.6 & Above	304.2	189.0	445.6
All Farms	338.8	195.9	416.6

Source: *FMS Deoria, Tables 5.130, 5.148*

The first point is that there was a great deal of variation between the average yields between Deoria and Muzaffarnagur. Whereas in Deoria the planted yield for all farms was only 338.8 quintals per hectare, and for the irrigated planted crop 416.6 quintals per hectare, it was 515.6 for all farms in Muzaffarnagur - a difference of 52% for the former figure. The variation between the ratoon yields was even more marked - just 195.9 quintals per hectare for Deoria compared to 351.4 for Muzaffarnagur - a difference of 80%

If we compare the yields by size of holding for the planted crop in general, with the planted irrigated crop, then they simply don't seem to "add up". It seems inexplicable that for the 0-2.6 acre size class the former figure should be greater than the latter, and particularly in the case of the 4.3-7.6 acre group which was supposed to have had a planted yield of 426.9 quintals per hectare but only 292.2 quintals per hectare for the irrigated crop! The only set which makes any sense is that for the 7.6 acre and above size class which had an overall planted yield of 304.2 quintals per hectare - higher than any other size class. Sugarcane is a crop which requires considerable inputs of labour, irrigation and manures or fertilizers if it is to be successfully cultivated. In view of this, there must

be some error in the above figures. In the subsequent analysis I shall therefore exclude the planted irrigated crop as a separate category, and look at the planted crop in general.

Let us now look at the yield distribution by size of holding. Taking planted sugarcane first, the yield ranged from 477.7 quintals per hectare for the under 2.6 acre size class to 304.2 quintals per hectare for the 7.6 acre and above size class. This is extremely interesting, for not only is it a complete reversal of the situation in Muzaffarnagur, but the yield variation between the largest and smallest cultivators was more than 50%. We would surmise that a proportionately larger percentage of planted sugarcane area was irrigated by the smallest cultivators than it was by the largest cultivators - bringing down the average yield for the latter. The other key factor which we shall examine shortly, concerns the labour input. For ratoon sugarcane there was an unambiguous inverse relationship between yield and size of holding, ranging from 233.2 quintals per hectare for the 0-2.6 acre size class, to 189 quintals per hectare for the 7.6 acre and above group. Once again, we would suggest that this was due to greater labour and irrigation inputs expended by small cultivators.

In the table below are presented figures showing the man days per hectare and the return per man day for sugarcane cultivation.

Table 15
Man Days per Hectare and Return per Man Day, Sugarcane, Deoria 1968/69

Size Class acres	Man Days per Hectare		Return per Man Day	
	Planted	Ratoon	Planted	Ratoon
			Rs.	Rs.
0-2.6	280	264	7.30	2.79
2.6-4.2	201	158	6.37	7.29
4.2-7.6	215	148	4.98	3.85
7.6 & Above	199	139	12.74	5.11
All Farms	205	147	6.29	5.02

Source: *FMS Deoria, Tables 5.124, 5.135*

As has already been noted, sugarcane cultivation is a highly labour intensive operation; but compared with those for Muzaffarnagur, these figures are enormous - an average of 205 man days for planted sugarcane - 80% above the corresponding figure for Muzaffarnagur, and an average of 147 man days for ratoon sugarcane - 48% above the Muzaffarnagur figure. Despite this, yields were much lower - which must be the result of a paucity of complementary inputs - particularly irrigation and fertilizers.

Looking at the distribution by size class, the under 2.6 acre size class had by far the largest labour input for both the planted and the ratoon crop. In the case of the planted crop it reached the figure of 280 man days per hectare, and for the ratoon crop 264 man days. By contrast, although there was some variation for the rest of the distribution, it was not great - for the planted crop labour input averaged about 205 man days per hectare and for the ratoon crop about 148 man days. The divergence between the labour input of the smallest size class and the rest of the distribution was about 30% for the planted variety and about 70% for the ratoon crop.

This leads us to ask the question why did small cultivators expend so much effort on cultivating what is after all a cash crop? It is a question of particular importance taken in the context of

their very small holding size and over-riding need to produce foodgrains for family consumption.

Krishna Bharadwaj [*1985*] highlighted the compulsive involvement of "chronically deficit and subsistence households" in commodity production and commercial exchange relationships.

Historically, sugarcane cultivation in Eastern UP was based upon a system of hypothecation, whereby "credits were attached to the cultivation of sugarcane to be sold to the merchant or the manufacturer as the case may be at pre-fixed prices much lower than the prevailing market rates. (Such ties between the sugar industries and sugarcane producers continue to exist to this day.)"[*Commander, 1986: 510*]

In this way a system of debt dependency was built up with the petty cultivator compelled to produce and sell his output on terms dictated by the purchaser. He could not escape from this system because his poor resource position (particularly land) and his perpetual indebtedness meant that he was constantly in need of cash for consumption or production needs.

Because they were permanently ensnared in this system of debt linkages, it was the petty cultivators with holdings below 2.6 acres who had the over-riding need to meet the "production targets" determined by the earlier cash advance. By contrast, with their bigger holdings, and greater resources, cultivators in larger size classes did not have quite the same imperative attached to their cane cultivation, and could "afford" to expend fewer resources - whether it be irrigated land or labour - and to be satisfied with lower yields. The costs of having to hire labour, was likely to be a key constraint for larger cultivators.

In addition it raises important questions with regard to the

production relationships involved. We already know from Chapter 4 that at this date tenancy was rife among cultivators with holdings below 2.5 acres in the region, and as has already been highlighted in Chapter 5, and in table 15 above, it is also likely that large landlords let out their irrigated land to share-croppers and tenants in order to reap the yield productivity advantages bestowed by large inputs of "free" tenant family labour. It may well be that these smallholders planted their land with sugarcane not out of choice at all, but at the behest of the landldord who already had some form of contract with the sugarmill. The smallholder, thus gained little himself from his high sugarcane yield as his surplus was expropriated jointly by the landlord and the manufacturer. It is feasible that this situation was perpetuated precisely because the tenant suffered the type of debt-bondage hypothesised by Bhaduri, and elaborated in Chapter 2, and had no alternative but to cultivate this crop, on the irrigated part of his holding, reserving the less productive unirrigated area for inferior food crops for his own family's consumption which was thereby depressed to subsistence level.

The costs of cultivation for planted and ratoon sugarcane are set out in the table below:-

Table 16
Cost per Hectare and per Quintal of Sugarcane, Deoria 1968/69

Size Class	Per Hectare		Per Quintal	
	Planted	Ratoon	Planted	Ratoon
	Rs.	Rs.	Rs.	Rs.
0-2.6	3,008	1,711	5.95	6.99
2.6-4.2	2,369	1,144	6.465	4.95
4.2-7.6	2,578	1,575	5.66	7.34
7.6 & Above	2,317	1,275	6.87	6.41
All Farms	2,401	1,321	6.50	6.41

Source: *FMS Deoria, Tables 5.129, 5.132*

The average (all farm) costs of production per hectare for sugarcane were not a great deal higher than the comparable figures for Muzaffarnagur, Rs. 2,401 per hectare for the planted crop, compared to Rs. 2,194 for Muzaffarnagur, and Rs. 1,321 for the ratoon crop compared to Rs. 1,217 for Muzaffarnagur. Sugarcane was more "expensive" to grow than any other crop - even for the ratoon variety the average was above that for irrigated wheat. However, it must be borne in mind that the sugarcane crop covered two crop seasons.

On average, it cost about 80% more to cultivate the planted crop than the ratoon crop. The costs of the former ranged from a high of Rs. 3,008 for the smallest size class to a low of Rs. 2,317 per hectare for the largest size class. But the big variation came between the smallest size class and the rest of the distribution which was pretty much clumped together. This is interesting, as it parallels the situation for labour inputs in Table 14. The correlation also extends to yields so that the 4.2-7.6 acre size class, which had the second highest costs also had the second highest labour input and yield. For the ratoon crop the highest costs were once again borne by the smallest cultivators with a total of Rs. 1,711 per hectare. The correlation that existed between size of holding, yield and labour input for the ratoon crop was disturbed for costs because of the very low costs incurred by the 2.6-4.2 acre size class - Rs. 1,144 per hectare - for which there is no immediate explanation. It is perhaps significant that this size class also had relatively low costs per hectare for its paddy crop. When we come to look at the detailed breakdown of costs on a farm-wise basis in the next section we shall hopefully be able to throw some light on this matter. That the figure itself was probably accurate is reflected in the lower per quintal cost of Rs. 4.95 for this size group, compared to an average

for all farms of Rs. 6.41. The overall conclusion that we can draw from this is that the most important single factor contributing towards the costs of cane cultivation was the labour input. However, once we take into account the extent to which family labour was used, then the real costs and returns of cane cultivation are likely to alter.

The income figures for the sugarcane crop are presented in the table below.

Table 15
Returns to Sugarcane Cultivation, Deoria 1968/69

Size Class	Gross Income		Net Income		Farm Business Income	
	Planted	Ratoon	Planted	Ratoon	Planted	Ratoon
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
0-2.6	5,500	2,448	2,042	737	3,233	1,587
2.6-4.2	3,648	2,303	1,279	1,158	2,205	1,899
4.2-7.6	4,562	2,145	1,070	570	2,035	1,494
7.6 & Above	3,371	1,099	2,533	713	1,893	1,337
All Farms	3,692	2,060	1,291	732	2,178	1,405

Source: *FMS Deoria, Tables 5.131, 5.134, 5.136*

Taking planted sugarcane first, there was a considerable variation in ranking by size class, depending on which income measure is chosen. For gross income and farm business income the highest return was achieved by the smallest size class and the lowest by the largest size class, but for net income the largest size class achieved the highest figure and the smallest cultivators came in second place. Consequently, if we think in terms of the rate of return to capital, measured by the ratio of net income to total costs, then the large cultivators achieved by far the highest figures despite their low yields. This was also reflected in the figures for return per man day in Table 14, where the 7.6 and above size class achieved a figure of Rs. 12.74 compared to an average for all farms of Rs. 6.29. Large cultivators were therefore getting by far the best return for the

inputs being expended. In order to offset the extra costs they would have had to incur in order to intensify the labour effort via hiring, they would have had to achieve a considerable increase in yields - unlikely without correspondingly increasing the complementary inputs of irrigation and fertilizer.

From their point of view it was far more advantageous to let out some of their irrigated land on a sharecrop basis and benefit from the large "free" inputs of family labour of their tenants. As we shall show later, there were far more than the immediate financial gains to be obtained from such a course of action.

For small farmers in particular, farm business income is the relevant income measure, excluding as it does the imputed costs of family labour and the rental value of owned land. For planted sugarcane there was an average for all farms of Rs. 2,178 per hectare, 38% below the corresponding figure for Muzaffarnagur. Whereas in Muzaffarnagur there was a direct correlation between return to planted sugarcane cultivation and size of holding the situation was reversed for Deoria so that there was a very marked inverse relationship between farm business income and size of holding, ranging from Rs. 3,233 per hectare for the under 2.6 acre size class to Rs. 1,893 for the largest size class. This undoubtedly reflected the higher yields enjoyed by small holders, but also the fact that there was intense exploitation of "free" family labour for this size group.

For ratoon sugarcane the variation by size class was not so marked, ranging from a farm business income of Rs. 1,899 for the 2.6-4.2 acre size class class (accounted for by relatively low costs) to Rs. 1,337 for the largest size class. The inverse relationship has therefore disappeared for the ratoon crop. This was because, despite the high labour input expended on this crop by the under 2.6 acre size

class, they derived by no means a corresponding increment in yield - once again an indication of the very great need for complementary inputs if labour is not to receive diminishing returns for effort.

We have already stressed in Chapter 6, on Muzaffarnagur, that the income figures pre-supposed standardized prices irrespective of size of holding. In reality this is not likely to be the case, particularly given the system of advances operated by the sugarmills. If the interest payments involved were to be included then it was extremely likely that the prices realized by small indebted cultivators would differ considerably from those to larger cultivators who were not so reliant upon advances.

Another point is that the extent to which the under 2.6 acre size class cultivated its sugarcane crop on rented or share-cropped land is unknown. Unfortunately the Farm Management Study itself does not give any reliable indication of the leasing in or share-cropping by these small holders. This is not surprising in view of the reluctance of cultivators to admit that land they cultivated was not legally theirs. This problem has already been dealt with in detail in Chapter 4. On the basis of the National Sample Survey data it was found that for the Eastern Region as a whole the leasing in of land on a share-crop basis was concentrated among cultivators with holdings below 2½ acres. [See Chapter 4,]. There is no reasons to expect that a similar situation would not be found in Deoria District. If this was the case, then it was possible that the landlord marketed the crop to the sugar co-operative, siphoning the advance he received through his hands, and paid the sharecropper only part of what he received from the mill.

This is a hypothetical, but entirely plausible scenario, particularly in view of the important research findings of Krishna

Bharadwaj and other workers in the field, on the prevalence of "intelinked markets" in rural India, including Eastern UP. In such a situation "a dominant party conjointly exploits the weaker parties in two or more markets by interlinking the terms of contracts." [*Bharadwaj, 1974: 13*] We shall consider this in greater detail when credit is examined.

CONCLUSIONS

What emerges most clearly from this examination of crop production in Deoria is that at the time of the Farm Management Study in 1968/69 there still existed in the district an inverse relationship between size of holding and yields. On the basis of this brief examination it is suggested that the main reason for this was the very large inputs of labour expended by small and marginal cultivators. We would further suggest that this was predominantly "free" family labour, and that such intense labour exploitation was largely the result of the prevailing semi-feudal production relationships of the region at this date whereby, given the absence of alternative employment opportunities, poor tenants and share-croppers were caught in a spiral of usurious rent and debt bondage, along the lines suggested by Bhaduri, and from which the current state of technology in the region provided no escape. In this situation intense cultivation of their small holdings was an attempt to provide sufficient for their family's subsistence, given that the landlord/usurer often expropriated 50% or more of the crop himself.

A further point to emerge was the extremely low overall yields for all the crops examined, compared with the situation in Muzaffarnagur. On the basis of the evidence in Chapter 5, it seems clear that this was largely the result of under-capitalization of

agriculture for all size classes - particularly with regard to irrigation.

What does all this mean in terms of the income realised from crop production overall? In the table below the figures are presented on a farm-wise basis.

Table 18
Value of Crop Production per Farm

Size Class acres	Value of Output per farm
	Rs.
0-2.6	566
2.6-4.3	878
4.3-7.6	1,873
7.6 & Above	1,930
Average - all farms	1,930

Source: FMS Deoria, Table 4.6

The first point is the enormous difference in the average value of crop production per farm between Deoria and Muzaffarnagur. Whereas for Deoria the figure was just Rs. 1,311, the corresponding figure for Muzaffarnagur was eleven times greater at Rs. 21,212. Undoubtedly the main reason for such a very great disparity is the bias towards very small holdings in Deoria District compared to Muzaffarnagur. Secondly, there was the composition of crop production. Of the three crops examined, which between them covered about 65% of the total cropped area in each district, the high value cash crop of sugarcane was considerably more important in Muzaffarnagur than it was in Deoria, and this must have affected the totals to some extent. The other principal factor concerns the higher yields achieved in Muzaffarnagur. This becomes important when the poor performance of the paddy crop which dominated the cropping pattern of Eastern UP and Deoria is contrasted with the very

favourable performance of wheat in Western UP, and particularly Muzaffarnagur, especially since the introduction of high yielding varieties.

Looking at the distribution by the value of crop output by size of holding, then it is exactly as expected - with a correlation between size of holding and total value of crop output. The fact that there existed an inverse relationship between yields and holding size was reflected in a figure for the value of crop output, which for the 0-2.6 acre size class is proportionately higher (given the small size) than for any other size class.

Despite the very much lower overall incomes from crop production, the range of inequality generated was in fact not much different in Deoria than it was in Muzaffarnagur - the largest size class had a crop income which was six times greater than that of the smallest size class in Deoria, compared to 6.8 times in Muzaffarnagur.

4. THE FARM ENTERPRISE AS A WHOLE IN DEORIA DISTRICT

In this section the information obtained from individual crop production will be expanded by looking at the costs and returns to cultivation as a whole. In particular it is hoped to answer some of the questions concerning the composition of inputs raised in that context. The table below sets out the costs per cropped hectare on both an absolute and percentage bases.

Table 19
Costs per Cropped Hectare, Deoria 1968/69(1)

	Size Class (acres) 0-2.6		2.6-4.3		4.3-7.6		7.6 & Above	
	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Family Labour	286	27.7	217	23.4	161	16.9	124	13.4
Hired Labour	35	3.3	71	7.7	112	11.7	127	13.7
Total Labour	321	31.0	288	31.1	1273	28.6	251	27.1
Bullock Labour	369	36.0	286	30.8	277	29.0	239	25.8
Seeds	117	11.4	123	13.2	105	11.0	123	13.3
Manures & Fertilizers	79	7.7	83	8.9	91	9.5	124	11.9
Irrigation Charges	2	0.1	14	1.5	12	1.3	15	1.6
Land Revenue	7	0.7	8	0.8	7	0.7	7	0.7
Rent of Leased Land	-	-	5	0.6	42	4.4	11	1.3
Depreciation	37	3.7	27	2.9	44	4.6	46	5.0
Int. on fixed capital	76	7.3	72	7.7	80	8.4	83	8.9
Int. on working capital	24	2.3	22	2.4	22	2.3	24	2.6
TOTAL	1,031		929		952		923	

Source: *FMS Table 4.2(b)*

(1) Rental value of owned land not included

Looking at the totals first, we find a situation very similar to that already identified in Muzaffarnagur, with the smallest size class exhibiting total costs higher than for the rest of the distribution. In this instance the under 2.6 acre size class had costs of Rs. 1,031 per hectare which was about 10% higher than for the other size classes, all of which were bunched around the Rs. 935 level.

Examining the table in detail, then the most noticeable feature is the very large percentage of costs imputed to labour for all size classes. This ranged from 31% for the two smallest size groups up to

4.3 acres, to 27% for the largest size class. However, there is much more variation if we examine separately the contribution of family and hired labour. Family labour was very important on small holdings, contributing nearly 28% of total costs for the under 2.6 acre size class, whereas hired labour contributed only 3.3% of costs. As the size of holding increased the importance of family labour in the cost structure decreased, whereas that of hired labour increased, so that for the above 7.6 acre size class their respective contributions to total costs were almost equal - 13.4% for family labour and 13.7% for hired labour. Labour hiring and all its implications for the generation of poverty and inequality will be considered in detail in Chapter 8. But within the context of this chapter it is important to note that this occurred on a significant level - especially in view of the possibility of "interlinked markets" already referred to.

The other major input in the table is bullock labour which accounted for 36% of total costs for the under 2.6 acre size class, and declined in importance as size of holding increased, so that for the 7.6 acre and above group it represented just 26% of total costs. With the exception of the under 2.6 acre size class the contribution of bullock labour to total output costs was in fact less than in the Western Region. In the Eastern Districts there was extreme competition between the human and cattle population for the available food resources. The most likely explanation for the lower costs imputed to draught animals in Deoria is that it was the result of fewer resources being devoted to them. It was certainly not the result of lower numbers, and indeed the cattle population over all is much denser in the Eastern Districts of UP than it was in Western UP. The working cattle of Deoria are described by the Farm Management Study as being "non-descript, tiny in size, of poor quality". Their

"low efficiency is compensated for by an increase in numbers".[*Gov't of India, 1968/669: Ch. I*]

Seeds were the next most important input, accounting for 11.4% of total costs for the under 2.6 acre size class and 13.3% for the above 7.6 acre group. In absolute terms, however, this of course represented a much larger total expenditure per farm for the larger holdings. The percentage of total costs per hectare represented by seeds was much less in Deoria than in Muzaffarnagur, where for the largest size class it reached 23.3% per hectare. The reason for this difference was largely the result of the differential spread of high yielding varieties in the two districts. As we saw from the sections on individual crops, at the time of the farm management study high yielding varieties were little used in Deoria. The extent to which seeds were purchased and to which they were reserved from the home crop is not clear. If the seed is purchased, then it is likely that small cultivators faced different market conditions than large.

Manures and fertilizers are aggregated for the Deoria figures, and ranged between 7.7% of total costs per hectare for the under 2.6 acre size class to 11.9% for the above 7.6 acre size class. We know from other evidence [*Board of Revenue, 1973*] that fertilizers were not reaching the Eastern Districts of UP in sufficient quantity, and that small cultivators in particular faced very great constraints and difficulties in trying to purchase these scarce inputs, even if they had sufficient cash to do so. [*Dasgupta, 1977: Ch. VI*] It seems probable, therefore, that these figures were largely accounted for by manures from the huge cattle population. This is reinforced by the fact that paradoxically the figures for Muzaffarnagur were much lower - which is something we would not expect if like was being compared with like.

Irrigation charges ranged from a minute 0.1% of costs per hectare for the under 2.6 acre size class to 1.6% for the above 7.6 acre size class, although the three classes above 2.6 acres are bunched together. This shows very clearly the very low access to irrigation facilities enjoyed by the under 2.6 acre group; indeed, as the Farm Management Study itself has already indicated, they relied predominantly upon non-masonry wells which collect percolation water - and even these rudimentary facilities were in inadequate supply. Size classes above 2.6 acres were better off with regard to irrigation - but not to a great extent - especially when compared to the situation in Muzaffarnagur where the figures ranged from 4.2% to 6.0% of costs per cropped hectare of somewhat higher total costs. We have already discussed the poorly developed irrigation infrastructure of Eastern UP in detail in Chapter 5, Part I.

The item rent of leased land has to be treated with extreme scepticism, especially in view of the fact that it was entered as nil for the 0-2.6 acre size group, which cannot be taken seriously.

It is significant that unlike for Muzaffarnagur, there was no item entitled Machinery in the list of costs for Deoria. In the table below we present the Factorwize Distribution of Costs per Farm in absolute terms as this gives a clearer indication of the distribution of capital by size class.

Table 20
Factorwize Distribution of Costs per Farm, Deoria 1968-69 (Rs.)

	Size Class (acres)				
	0-2.6	2.6-4.3	4.3-7.6	Above 7.6	All Farms
Family Labour	242	399	511	860	551
Hired Labour	29	131	355	878	419
Total Labour	271	530	866	1,739	970
Bullock Labour	312	525	877	1,653	949
Seeds	99	225	333	853	442
Manures & Fertilizers	67	153	287	860	412
Irrigation Charges	1	25	38	105	51
Land Revenue	6	14	21	48	26
Rent for Leased land	-	10	133	80	58
Depreciation	32	50	139	318	159
Int. on Fixed Capital	64	132	254	571	297
Int. on Working Capital	20	41	71	167	87
TOTAL	872	1,704	3,021	6,395	3,450

Source: *FMS Deoria, Table 4.2(a)*

The two items Depreciation, and Interest on Working Capital have been abstracted below. Interest on fixed capital has not been included because this largely represents buildings.

Table 21
Capital Costs, Deoria 1968/69:

Size Class acres	Depreciation	Interest on Working Capital	Total	% of Total Costs
	Rs.	Rs.	Rs.	%
0-2.6	32	20	52	6.0
2.6-4.3	50	41	91	5.3
4.3-7.6	139	71	210	7.9
7.6 & Above	318	167	485	7.6

Taking the total figures, there was a considerable increase in the total costs attributed to capital as size of holding increased - ranging from Rs. 52 for the smallest size class to Rs. 485 for the largest - more than nine times the former figure, and largely the result of the possession of farm carts by larger farmers. [*Govt. of India, 1968/69: Ch IV*] This is also represented in the larger percentage figure - 7.6% compared to 6.0% of costs for the smallest size class. By far the bulk of the capital in Deoria was represented

by very rudimentary farm implements such as ploughs, harrows and hoes. (This has already been discussed fully in Chapter 5, Part II). Interestingly, although of course, the overall absolute totals were much lower, the actual percentage of costs expended on "capital" in Deoria was very little different from that in Muzaffarnagur. This is a fact which has been remarked upon by C.H.H. Rao. [*1966*] He found that despite the extreme scarcity of capital in Eastern UP the actual ratios of capital input to output were higher in Eastern UP than in Ferozepur in the heart of the Green Revolution area in Punjab. He explained this apparent anomaly by suggesting that "much of capital input in this region (Eastern UP) represents non-monetary capital formation such as construction of irrigation works (masonry wells) and rearing and upkeep of farm animals by using surplus family labour, for instance, according to the Farm Management Studies in the late 1960's private wells dug and used through labour-intensive methods accounted for as much as 86% of total irrigated area in Deoria as against only 7% in Muzaffarnagur. Also, Deoria farmers employed 32 bullock pair days per hectare as against 26 in Muzaffarnagur. It would therefore be more meaningful to examine the volume of employment generated in relation to cash outlays (excluding wages for hired labour). Cash outlays constituted only about 10% of total capital input in Eastern UP as against 31% to 43% in Ferozepur (Punjab) so that cash outlays per unit of labour and output turn out to be much lower in Eastern UP."[*Rao, 1976: A121*]

Overall, what emerges from this brief look at input costs is a picture of a poorly capitalized and poorly irrigated agriculture - irrespective of holding size. It was predominantly dependent upon a combination of labour and draught animal inputs. The most significant difference between size classes arose in the proportion of

family and hired labour used, and the fact that because of indivisibilities, small cultivators bore a proportionately higher cost per hectare for their draught animals.

It is important for any discussion touching upon production relations to know how the labour input is broken down between family labour and hired labour. This we present in the table below:

Table 22
Composition of the Labour Input per Cropped Hectare, Deoria, 1968/69

Labour Days per Cropped Hectare	Size Class (acres) 0-2.6 No.	%	2.6-4.3 No.	%	4.3-7.6 No.	%	7.6 and above No.	%
Family	130	90	97	88	74	64	58	53
Hired	15		22		25		33	
		)10		)22		)36		)47
Annual Farm Servants	-		6		16		19	
TOTAL	145		126		115		110	

Source: *FMS Deoria, Table 3.30*

Taking the totals first, the labour input per cropped hectare was inversely related to size of holding, ranging between 145 labour days on the under 2.6 acre size class to 110 labour days on the 7.6 acre and above size class. This was very considerably above the figures for Muzaffarnagur and reflected the extreme pressure upon the land in the Eastern Districts of UP. In particular, the very large input of family labour - 130 days per cropped hectare on small holdings, indicates not only an attempt to increase total output by employing labour up to a point where the returns to this input were very low or even non-existent, but also perhaps the sharing of the available work between the family members. Cultivators in Eastern UP continued to apply labour to the land in significant proportions throughout the agricultural year. C.H.H. Rao [*1976*] found that inter-season variability in employment was very much lower in Eastern UP when compared with Punjab and Western UP, which seems to reinforce the

hidden unemployment hypothesis. Krishna Bharadwaj expanded upon this theme, maintaining that "the non-availability of assured and continuous employment induces petty producers to cling to their tiny holdings and cultivate them intensively with the help of family labour. This is reflected in the high intensity of cultivation, relatively higher land productivity but lower labour productivity on small rather than on large farms - and intense self-exploitation of family labour. It has also been noticed that the total (on-farm and off-farm) employment of petty operators is less than wage labourers can sometimes obtain and the average return per unit of time for the former may also be smaller than the casual worker's wage rate. However, the risk of not securing employment is so great with the lack of a developed wage-labour market that there is a preference to own or lease-in a parcel of land, however small." [*Bharadwaj, 1985: 18-19*]

Unemployment was indeed a problem among the sampled households, as shown in the table below.

Table 23
Male Family Labour Time - Breakdown of Activities, Deoria 1968/69

Size Class	Farm Work	Non-Farm Work	Hired	Unemployed
	%	%	%	%
0-2.6	32.3	113.9	3.9	53.7
2.6-4.3	45.4	13.4	5.8	42.1
4.3-7.6	51.4	14.0	5.0	34.5
7.6 & Above	58.0	13.1	4.1	28.9

Source: *FMS Deoria, Table 3.36*

Despite the extremely large labour input expended by the under 2.6 acre size class, less than one third of male family labour time was actually spent on farm work, and for more than half of their available time they were in fact unemployed. This illustrates well the problems highlighted by Dandekar and Rath [*1971*], Krishna Bharadwaj [*1985*], and others. Non-farm work was only able to fill

in 14% of their total time available, and despite the large amount of labour hiring done by larger cultivators, work from this source filled an average of less than 4% of the total time available for these small cultivators.

As size of holding increased so did the proportion of male family labour time spent on farm work, so that for the above 7.6 acre size class it reached 58% of available time. Likewise, there was an inverse relationship between size of holding and the time spent unemployed - it was under 30% for the largest size holding category, but nearly 54% on the under 2.6 acre holdings.

Given this apparent non-availability of alternative employment opportunities, it is not surprising to find, in Table 22, that Annual Farm Servants represented more than 40% of the hired labour input on farms in the 4.3-7.6 acre and 7.6 acre and above size groups. In one respect this provided a certain "job security" in an area where employment opportunities were scarce. But in a backward agrarian economy such as Eastern UP this also represented a form of attached labour - and its prevalence may well have represented a continuation of semi-feudal relations of production in the district.

Farm servants, hired on an annual basis were more likely to be paid in kind, and their wages were likely to have been less than those of casual labour, as a premium for the "security" of continuing employment. In this type of backward agriculture there were very often connections between employers and farm servants going back several generations, and we do not know the extent to which this time spent as farm servants was in fact "forced employment". Although the contracts are theoretically annual, there is a great deal of scope for exploitation on the basis of consumption loans and wage advances so that even if the farm servant wished to leave his employment he would

be prevented from doing so on account of debt obligations. [*Bharadwaj, 1985: 18*]

V.K. Jairath, writing on Central UP, describes a situation in which share-croppers were evicted from land after the introduction of tubewells. The previous landlords, however, were still able to command their cheap labour services because of accumulated debt, and thus to deny these ex-shareholders the opportumnity "to sell their labour poweer in a 'free labour market' to the highest bidder"[*Jairath, 1979: 180*]

The entire semi-feudal hypothesis rests ultimately upon the extent to which perpetual indebtedness is an element of rural economy. [*Ghose & Saith, 1976: 315*] From the data at our disposal there is no way that we can make such an assessment. However, that debt was widespread and an important element among this sample of households in Deoria District in 1968/69 is represented in the table below.

Table 24
Details of Borrowing by Size of Farm and Per Indebted Family in 1968/69

Size Class	% of Borrowing Families	Average Amount Borrowed	Average Amount per hec	% Indebted	Debt per Family	Debt per indebted family
	Rs.	Rs.	Rs..	%	Rs.	Rs.
0-2.6	12	163	33	30	138	455
2.6-4.3	27	124	26	-	66	364
4.3-7.6	22	671	28	28	189	596

Source: *FMS Deoria, Tables 3.47 and 3.53*

The first point to make is that there is no way of assessing how accurate this data is. In view of what has been said about debt-bondage, small cultivators may have been very reluctant to admit to being in debt to researchers, as the act of documenting that fact may be seen by the cultivator as somehow validating the debt itself. In

particular, it seems inconceivable that only 12% of the 0-2.6 acre size class should resort to borrowing - the smallest proportion for any size class. A possible explanation for this is that this table only represented cash borrowings, and so excluded loans in kind, which were largely taken by small and marginal cultivators.

The average amount borrowed was highest for the largest size class at Rs. 671, not surprisingly, view of this groups easier access to cheaper forms of credit, given their greater credit-worthiness. [*Lipton, 1976: 545*] Of the total amount borrowed by the largest size class only 12% of the total was at interest rates between 18%-25%. They were able to obtain by far the bulk of their credit at interest rates of less than 9%, indicating that they were able to obtain most of their credit from formal sources such as government, co-operatives and banks. Of the amount borrowed by these cultivators more than 50% was advanced on the basis of personal security, and 43% was backed by land. By contrast, 95% of the total borrowings of the under 2.6 acre size class was backed by land - yet another indication of the extreme vulnerability of this class - for default could well have threatened them with the loss of their land. Furthermore, 65% of their total borrowing was at interest rates between 18% and 25% - indicating that agricultural and professional money-lenders must have been a very important source of credit. The remaining 35% was at an interest rate below 9%, and one might expect it to have been provided by sugarcane co-operatives. [*Govt of India, 1968/69: Ch. 3*] As we treated the percentage of borrowing families with scepticism, so must we the percentage of those borrowing families who were indebted. According to the table just 30% of the 12% of families under 2.6 acres who borrowed are actually indebted, while 28% of the 22% of families with holdings above 7.6 acres were indebted. Of far more interest

are the figures for debt per indebted family. As expected, given their enhanced borrowing capacity, the figure was highest for the above 7.6 acre size class at Rs. 596 per farm, followed by the 4.3-7.6 acre size class at Rs. 520 per farm. But what is of particular interest is the figure of Rs. 455 per indebted family in the under 2.6 acre size class. In terms of the size of holding this represented a much deeper debt than for either of the two larger size classes, and given that it was largely backed by land, highlights their extreme vulnerability.

If we look at the use to which borrowing is put, in the table below, then this large debt of indebted families in the under 2.6 acre size class takes on a particularly insidious appearance.

Table 25
Utilization of Borrowing per Farm Family by Size Class, Deoria 1968/69

Size Class	Expenditure in Agriculture		Consumption	Litigation
	Capital	Current		
	%	%	%	%
0-2.6	65	-	30	-
2.6-4.3	26	54	19	-
4.3-7.6	-	100	-	-
7.6 & Above	15	68	-	10

Source: FMS Deoria, Table 3.49

The borrowing of the smallest size class was divided 65%:30% between capital expenditure in agriculture and consumption expenditure. It is this latter component which is particularly pernicious. As we showed in Chapter 2, Bhaduri built his theory of semi-feudal agricultural relations on the premise that small and marginal cultivators, once in debt for consumption - particularly to their landlords, would be unable to to escape from the bondage that this implied. Other commentators subscribing to the semi-feudal hypothesis, have stressed the importance of inter-linked markets in leading to economic domination of economically weak small and marginal

farmers by better endowed landlords/employers/creditors, who may well encompass all three functions in their person. [*Bharadwaj, 1985*]

While at first sight, the fact that 65% of borrowing was utilized for capital expenditure in agriculture looks more positive for these small cultivators, when we remember that capital in this context consisted of draught animals and the most primitive of implements such as wooden ploughs and hoes produced in the village, the figure begins to take on a new slant. The devastating effect that the death of a bullock can have upon small and marginal cultivators in this region of India has been well documented. [*Jairath, 1979: 124*] It is more than likely that the borrowing did indeed represent finance to replace draught animals that had died. Rather than being a positive injection of capital into their holding, this merely represented an urgent need to replace an essential item to make cultivation possible at all, and therefore, in terms of both the need to repay the capital sum advanced and the interest, was a drain upon the cultivator's meagre resources rather than the reverse. We shall consider the whole problem of indebtedness amongst poor peasant marginal farmers in greater detail in Chapter 8.

On the evidence of Table 25, only the 0-2.6 acre size class took consumption loans. For every other size class borrowed funds were divided between capital and current expenditure in agriculture, although the above 7.6 acre size class did spend 10% on litigation - which is widespread in India. [*Lipton, 1976*]

Current expenditure in agriculture was by far the most important use of loans and represented their entire use for the 4.3-7.6 acre size class, 54% for the 2.6-4.3 acre group and 68% for the above 7.6 acre group, whereas according to the table it was nil for the under 2.6 acre group, which in view of other evidence, must be treated with

some scepticism. In view of the importance of sugarcane co-operatives as a source of loans it seems reasonable to make the assumption that much of the borrowing under this category represented advances by sugarcane co-operatives to growers to finance production of this crop. This was a relatively cheap form of credit, for the annual interest rate was between 7.5% and 9.0% compared to up to 25% if a cultivator used agricultural moneylenders.

The need for credit to finance production, and in the case of cultivators below 2.6 acres, for consumption as well, is determined by the flow of output and receipts. In table 17 earlier, we showed the very large difference between the average value of crop output per farm in Deoria as compared to the much larger total in Muzaffarnagur. We also showed the very large variation in the aggregate value of crop output per farm by size of holding. In this section we intend to elaborate upon this by looking at the sale and marketing aspects of crop production. We shall start off by looking solely at foodgrains. The quantity of foodgrains produced and sold is presented in Table 26 below.

Table 26
Quantity of Foodgrains Produced and Sold, Deoria 1968/69

Size Class acres	Production per annum	Monthly Quantities sold	As % of annual production
	quintals	quintals	%
0-2.6	11.08	1.47	13.3
2.6-4.3	22.22	4.4	19.8
4.3-7.6	44.24	9.6	21.7
7.6 & Above	85.21	18.03	21.2

Source: *FMS Deoria, Table 7.1*

The principal crop contributing towards these totals was wheat, followed by paddy - a pattern which was followed by all the size classes. As we would expect, production of foodgrains correlated

with size of holding. They were very low compared with the figures for Muzaffarnagur which of course reflected the bias towards small holding size found in Deoria.

The figures for the monthly totals simply did not "add up" when compared with the quantities produced per annum. There are two possible explanations for this. Either sales were being made from stocks, which doesn't seem very likely in view of the largely subsistence nature of Deoria agriculture, or the figures only referred to those months in which foodgrains were actually sold. However they were calculated, the significant point about the table is that monthly sales as a proportion of annual production was much lower for the under 2.6 acre size class than any other group, reflecting the fact that for this size class foodgrain production was largely for home consumption, or to pay the landlord rent and interest.

When cultivators did sell their foodgrain output they were likely not only to have faced different market conditions and prices, but also different marketing costs. This is reflected in the table below.

Table 27
Marketing Charge per Quintal of Foodgrains according to different items of cost and marketing, Deoria 1968/69

Size Class	Middlemen	Transport	Other Charges	Total
0-2.6	0.18	0.16	0.11	0.45
2.6-4.3	0.15	0.17	0.06	0.38
4.3-7.6	0.14	0.21	0.09	0.44
7.6 & Above	0.12	0.26	0.012	0.39

Source: *FMS Deoria, Table 7.7*

The village bania accounted for the largest proportion of foodgrains sold for every size class, but was of particular importance for the smallest size class. [*Govt of India, 1968/69: Ch. 7*] Unable to retain his crop until prices were most favourable, because of

pressing needs for cash, his foodgrain output was largely sold in small quantities within the village. This resulted in him having to pay a larger marketing commission to the "middlemam" than any other group - Rs. 0.18 per quintal compared to just Rs. 0.12 per quintal for the largest size class. The compulsive involvement of these small cultivators in an exchange relationship which was clearly exploitative, is yet another indication of the precarious economic position they were in, and evidence for the semi-feudal hypothesis. They may well have had to incur a consumption loan in order to re-purchase foodgrains at a later date on terms which were even more adverse, in order to maintain their own subsistence, in much the way hypothesised by Bhaduri and outlined in Chapter 2, earlier.

Transport costs show a direct relationship with size of holding, ranging from Rs. 0.16 per quintal for the under 2.6 acre size class to Rs. 0.26 for the above 7.6 acre group. This is because larger farmers were in a position to retain their foodgrain harvest until prices were higher and transport their output to the local *hat* or *bazaar* for sale, where they will achieve a higher price than within the village. As a result they are more likely to need to hire a cart.

The receipts from sales came in discrete gaps - in November cultivators generally sold the paddy crop. The rabi harvest started in March and the produce is sold between April and June. [*Govt of India, 1968/69: Ch. I*] The need for credit to see cultivators through the periods when he had no crop receipts was therefore of very great importance.

Given the low yields, and low outputs, crop production alone was inadequate to provide a subsistence, especially for the smallest cultivators. Livestock products were therefore of very great

importance in supplementing the family income, as illustrated in the table below.

Table 28
Contribution of Crop and Livestock Products to Total Output, Deoria 1968/69

Size Class	Crops		Livestock		Total
	Rs.	%	Rs.	%	Rs.
0-2.6	566	41.5	798	58.5	1,364
2.6-4.3	878	51.9	816	48.1	1,694
4.3-7.6	1,873	66.1	981	33.9	2,854
7.6 & Above	3,437	73.0	1,128	27.0	4,718

Source: *FMS Deoria, Table 4.6*

The contribution of livestock products to total farm output declined in importance as size of holding increased. For the under 2.6 acre group livestock products were indeed more important than crops - contributing more than 58% of the value of total farm output, whereas it was only 27% for the 7.6 acre and above group. This once again illustrates very graphically the precarious position of the smallest cultivators clinging on to a livelihood by diversifying their activities.

Interestingly, the sale value of farm produce worked out rather differently from the totals above, as we see from the table below.

Table 29
Sale Value of Farm Produce sold to Sugar Mills, Deoria 1968/69

Size Class	Total		Sugar Mills	
	Rs	%	Rs.	%
0-2.6	567	41	430	75.8
2.6-4.3	1,282	76	870	67.8
4.3-76	2,374	83	1,470	61.9
7.6 & Above	5,086	108	3,400	66.8

Source: *FMS Deoria, Tables 7.3 and 7.6*

Whereas the total value of crop and livestock products amounted to Rs. 1,364 for the under 2.6 acre size class the value of what they sold amounted to only Rs. 567 - just 41%. There was a steady increase in the percentage of farm produce that was sold as size of holding increased, so that for the above 7.6 acre size class this figure was 8% higher than the value of total output. There are two possibilities for this, firstly that it may have represented stocks to some extent, and secondly it may be because the valuations placed upon farm output by the Farm Management Survey were different than the values actually realized at sale. We already know that cultivators of different sizes faced different market conditions, with the larger cultivators able to command more favourable prices for their products - and this may well be the explanation for the larger sale value than output value for the largest size class.

Although the smallest size class in fact sold a smaller proportion of its output than any other size class, which is not surprising in view of its home consumption needs, and the possibility that it paid interest to its creditor/landlord, it did in fact sell more than three-quarters of what it marketed to the sugar mills. This is extremely interesting, and begs the question - already raised - of the extent to which this was a forced involvement with the sugarmill sector of the economy, based upon debt linkages. We already know that sugarcane co-operatives dominated all sources of credit for all farms, although unfortunately we do not have figures broken down by size class. We know from our look at cropping patterns that the under 2.6 acre size class had a smaller proportion of its land under sugarcane than any other size class - and it may well be that even this was not of the cultivator's own choice, but because he had no alternative given his indebtedness to the sugarcane

co-operatives. As Krishna Bharadwaj has said "(historically) increasing commoditisation was for some sections of the peasantry a consequence of 'forced commercialization' . . . In the case of compulsively involved peasantry, in essence, the producers were still concerned precariously with eking out their subsistence: theirs was not a free choice always to 'commercialize' - and even if it were apparently a free choice it was an 'encumbered freedom' - for the consequences were greater dependence and servility in relation to the exploiter."[*Bharadwaj, 1975: 14*]

We shall conclude by looking at the incomes generated on the farm. Net Profit and Farm Business Income figures are presented in the table below.

Table 30
Net Profit and Farm Business Income per hectare and per farm, Deoria 1968/69

Size Class	Net Profit		Farm Business Income	
acres	per hec	per farm	per hec	per farm
0-2.6	1,052	874	1,318	1,115
2.6-4.3	856	1,570	1,074	1,969
4.3-7.6	958	3,037	1,119	3,548
7.6 & Above	872	6,037	996	6,898

Source: *FMS Deoria, Table 4.7*

Unlike the figures for Muzaffarnagur, which only included crop production, these figures do in fact also include the contribution of livestock products. Looking first at the net profit figures we see that on a per hectare basis the under 2.6 acre size class, with a total of Rs. 1,052 achieved a higher net profit per acre than any other size class. However, as we have already seen from Table 28, this was largely the result of supplementing income from crop production with that from livestock products. It was highly

unlikely, given the oppressive nature of the production relationships in the region, that this so-called "profit" accrued to the cultivator himself. It was more likely that a considerable proportion was expropriated by the landholder or creditor as rent or interest on debt. On a farmwise basis there was of course a correlation between the size of farm and the net profit figure - ranging from just Rs. 874 for the under 2.6 acre size class to Rs. 6,037 for the largest size class.

As in the case of Muzaffarnagur, we are more interested in the farm business income figures because they reflected the farmer's real income - excluding the imputed costs of family labour and the rental value of owned land. Looking at the per hectare figures first, there was an inverse, although not monotonic correlation between the size of holding and farm business income, ranging from Rs. 1,318 per hectare for the under 2.6 acre size class to Rs. 996 for the above 7.6 acre group. This was a somewhat larger variation than was the case for net profit and reflected the very large use of family labour by smallholders. When we look at the farm business income figures on a farm-wise basis they show a considerably wider range than do the net income figures - from Rs. 1,115 for the smallest size class to Rs. 6,898 for the largest. The main reason for this was the non-inclusion of the imputed rent of owned land, which particularly affected the largest size class - raising the farm business income figure considerably.

If we compare these figures with those for Muzaffarnagur, then the different size distribution of holdings between the two districts meant that over the population as a whole, incomes were much lower in Deoria than they were in Muzaffarnagur for the cultivating population. The degree to which this represented actual poverty we shall examine

in chapters 8 and 9.

Interestingly, the per hectare figures for farm business income were comparable for the two districts. Indeed, the under 2.6 acre size class in Deoria had a higher farm business income per hectare than any other group in either district. Of course, the Deoria farm business income figures included livestock products whereas those for Muzaffarnagur did not. However, the latter can be adjusted to include this item. If we do this we still find that the farm business income per hectare was higher for the under 2.6 acre size class in Deoria District than for any other group in either district.

This is a most significant and interesting observation - but as we have shown in the foregoing analysis - far from being an indication of the greater efficiency of small cultivators it was a symptom of the precariousness of their economic surival, particularly in the light of semi-feudal production relationships which meant that a considerable proportion of their income accrued to the landlord or moneylender. In order to maintain a bare subsistence they needed to diversify their productive activity into livestock products as their tiny plots were inadequate to provide an income to pay rent, interest and feed their families from crop production alone. At the same time they expended a vast amount of family labour on their land in an effort to raise productivity.

CONCLUSIONS

Several important conclusions have emerged from our examination of the farm management study data which we can conveniently divide into three interconnected categories: crop production; farm incomes; and production and exchange relations.

The first point to make concerning crop production is that the

cropping pattern of Deoria District, and indeed of the Eastern Region of UP as a whole, was at this date biased towards paddy cultivation. This is significant because as we have shown, it has proved far more difficult to extend successfully the green revolution technology to this crop than to the more amenable wheat crop of Western UP and Punjab. Foodgrain yields and production in general were therefore lower in Eastern UP and Deoria District. But this was not the only factor making for low foodgrain yields. As we have shown, the paddy yields of Deoria District were low compared to those elsewhere in India, as were the wheat yields. This we have judged to be the result of a lack of complementary inputs - particularly irrigation and fertilizers.

Although small cultivators had higher yields as a result of "extreme self-exploitation of family labour", their small holding size rendered their incomes from crop production inadequate for subsistence, so they were forced to rely on livestock products for the bulk of their incomes. The bias towards small holdings in the District and the Eastern Region precluded the generation of a surplus that could be used for productive investment in agriculture. While larger cultivators were producing larger absolute outputs, and thus a surplus, access to capital inputs which could raise productivity was severely constrained in the region, so that cultivation remained dominated by the two input of labour and draught animals whatever the size of holding. As a result of all these factors, incomes generated within the agricultural sector remained low when compared with those found in Muzaffarnagur and the Western Region in general.

Despite the low absolute level of the bulk of incomes there was still scope for the generation of quite extreme degrees of inequality in agriculture. The distribution of land remained the single most

important factor, for although small cultivators engaged in extreme levels of self-exploitation of family labour in an effort to increase the productivity of their land - and did in fact succeed in achieving higher yields - they were unable to overcome the absolute production constraint imposed by small plots.

The economic survival of these small cultivators was therefore precarious and they had to rely on credit to tide them over times of paucity. To some extent this was credit provided by the sugarcane co-operatives which were overwhelmingly dependent upon their supplies from a multiplicity of petty producers. The debt linkages so engendered tied small cultivators into a system of petty commodity production and exploitative exchange relationships. Much of the remainder of the credit advanced to small cultivators was provided by agricultural moneylenders at very high interest rates, which begs the question of the extent to which it was provided by landlords. Although the farm management study itself did not deal with tenancy and sharecropping, we know from Chapter 4 that this was very significant among the smallholders of Eastern UP at this date- and there is no reason to believe that it should not also be so among this sample in Deoria District. Given the poor resource position of poor peasant small cultivators it would not be surprising to find such interlinked markets with all the implications for economic and social exploitaitation this implies.

It is suggested that the Farm Management Study data upholds the "semi-feudal" hypothesis for Eastern UP. It is certainly easy to see how such a state of affairs could be perpetuated given the overall capital shortage of the Eastern Region of UP. In the absence of easy access to capital inputs there was no great incentive for larger cultivators and landlords to divert their agricultural surplus from

usury to productive investment.

Overall the picture that emerges of Eastern UP at this date was one of a low absolute level of living for the bulk of cultivators, but the continued persistence of considerable inequalities resulting from land distribution and exploitative production relations. We shall explore what this actually meant in terms of poverty and inequality in the next two chapters

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CHAPTER 8

THE POOR

MARGINAL FARMERS & AGRICULTURAL LABOURERS

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PART I - IDENTIFYING THE POOR

INTRODUCTION

In our introductory chapter, which contained a survey of the literature on poverty and inequality in India, we dealt in detail with the various definitions of poverty current. Most of these depend upon some minimum level of living such as the oft-quoted Rs. 15 per capita per month at 1960-61 prices. Our aim, however, is much wider than simply measuring the number of people who fall below what is after all a somewhat arbitrary base-line.

In the course of Chapters 4 and 5 we showed how the extent and terms of access to land and capital inputs not only differed between agrarian classes, but partially determined the class structure in each region. In Chapters 6 and 7 we outlined the production processes at farm level which led to the generation of different levels of income on farms of different sizes in each region and determined the pattern of income inequality between cultivating households in Western and Eastern UP. At the same time we were able to say something about the production relationships generated within the process of production insofar as there was discernible a correlation between the extent of labour hiring and size of holding in each region.

Whether we looked at the more capitalist agriculture of Western UP or the predominantly semi-feudal agriculture of the East, it is clear from both a theoretical and an empirical point of view, that the most important factor determining whether a household was likely to be poor was its position in the class structure. Households without access to the primary means of production - land - must depend overwhelmingly for their livelihood on agricultural labour. Wages were inevitably their main source of income and as such, the class of

landless agricultural labourers faces great uncertainty in respect of its subsistence in an economy where the demand for labour fluctuates seasonally. But it is not only the totally landless agricultural labourer who can be expected, as a result of his class position, to be poor. The marginal farmer (or "poor peasant" on Patnaik's criterion) cultivates some land, but it is insufficient to provide totally for his family's subsistence. This land may be either owned or rented or a combination of both. In the case of rented land he often has to pay high "hunger rents" and is therefore subject to direct exploitation by his landlord. Net income from cultivation is so low that such a household must obtain a considerable proportion of its subsistence by hiring out its labour.

In this chapter the analysis will be taken a step further by not only identifying the poor as a class but in seeking to uncover some of the decisive economic factors which were responsible for the poverty of rural households in each region in the early 1970s. To this end we shall divide the chapter into four basic sections. In Section 1 we shall seek to identify the poor as a class, looking at the structure of land-holding and employment for the small cultivator and wage-earner populations in each region. Section 2 will examine the structure of Wages and Incomes, and Section 3 will deal with Assets and Indebtedness. Together these two sections should illuminate not only the access to incomes and wealth for the poor in each region, but also provide some indication of relative poverty within the distributions themselves. In Section 4 we shall look at Household Consumer Expenditure and Per Capita Consumption in an attempt to assess the depth of poverty in each region.

The data source is the 25th Round of the National Sample Survey, conducted between 1st July 1970 and 30th June 1971, which had the aim

of enquiring into the "economic conditions of the weaker section of rural population". A sample of small cultivator and non-cultivating wage-earner households was the subject of this enquiry. Small cultivators were defined as "the lowest ten per cent of the households having some cultivated land, either owned or leased in, during the reference period July 1969-June 1970", and non-cultivating wage-earners as "households having no cultivated land whatsoever during the same reference period". Households who derived their incomes predominantly from other sources, such as trading and self-employment were excluded. In Uttar Pradesh the Survey covered 312 villages in Western UP from which were selected 422 small cultivator households and 525 wage-earner households. In Eastern UP, 456 villages were surveyed, from which 525 small cultivator and 201 wage-earner households were canvassed. This represents a ten per cent sample, and despite its small size, the 25th Round is widely regarded as being reasonably representative of the economic conditions of these groups. [*Bardhan, 1977(a), A42*]

We have already made considerable progress in identifying the poor in each region. Landlessness is very important in the Western Region. According to the 26th Round of the NSS nearly a third of all rural households in Western UP operate no land, while nearly a quarter of the landholding households of the Region operate holdings of less than 2½ acres. By contrast, while there is much less absolute landlessness in the Eastern Region, with just 14% of rural households operating no land, the proportion of households operating holdings of less than 2½ acres at 53% of the total, is more than double that in the West.

According to the 1971 Population Census, 22% of the rural workforce in Western UP was defined as agricultural labourers, whereas

33% of the rural workforce of Eastern UP was so defined. This was despite the greater absolute landlessness in the Western Region, and highlights the problem of defining an agricultural labourer in an economic environment in which individuals are reliant on more than one activity or occupation for a livelihood.

If we accept the Census figures then there was a dramatic increase in the proportion of agricultural labourers in the working population during the decade 1961-71. In the Western Region they increased from 11% to 22% of the total, and in the Eastern Region from 20% to 33% of the total. However, as Rohini Nayar points out,

> "The Census of 1961 and 1971 classifies agricultural workers as cultivators or agricultural labourers. Tenants and sharecroppers were largely recorded in the former category. However, the fear of land reforms, together with the enhanced profitability of agricultural production has frequently resulted in the resumption of land under personal cultivation, leading to the transformation of erstwhile tenants and sharecroppers into agricultural labourers on an accelerated scale. To the extent that this has happened, the increase in the number of agricultural labourers is not real in the sense that it does not reflect a transformation of erstwhile landowing cultivators into agricultural labourers. [*Nayyar, 1977*]

There is also as Kalpana Bardhan points out, the problem of definitions. ". . . the 1951 and 1961 Census used the relatively liberal 'usual status' definition of a worker which provided an inventory of persons engaged in any economic activity on a more or less regular basis, irrespective of the time intensity of such work participation. The reference period was broadly defined as 'the greater part of the working season during which anyone gainfully employed for at least one hour a day was considered to be a worker'. The 1971 Census made a major departure by using a labour time disposition criterion over the reference period, and by defining workers as only those who spent the major part of their time in economic activities. Thus all irregular/marginal/part-time workers,

by the time disposition criterion, came to be enumerated as non-workers in terms of their main activity, and whatever economic activity these 'non workers' might be doing was enumerated under their secondary activity. It has been argued that in the rural context of self-employment and use of family labour in seasonal types of productive activities the more liberal concept of a worker like that used in the 1961 Census might be more appropriate and capture the reality better - particularly for women and children who, except during the peak agricultural seasons when they are heavily and overtly drawn into the working force, very often dovetail their participation in household activities."[*Bardhan. 1977: A35*]

On the basis of the 1971 Census definitions it therefore seems highly likely that the estimates of the agricultural labour population in each region were gross underestimates of the actual participation rates in each region. This highlights the importance of considering not only the landless population but also those households cultivating small holdings who supplemented their income from cultivation with that from working on the farms of others. As Kalpana Bardhan says, "all the sources, Census, NSS, FMS, seem to indicate in various ways that a very wide range of rural households and a major proportion of rural workers variously combine self-employment with wage employment, subsistence production with labour market participation . . ." [*Bardhan. 1977 A34*]

1 THE AGRICULTURAL LABOUR POPULATION IN WESTERN UP

In our work so far we have made the assumption that the poor were mainly concentrated among the landless and those with holdings of less than 2.5 acres. That this is a reasonable assumption is demonstrated from the table below which shows the percentage distribution of

households by size class of area cultivated for the small cultivators surveyed by the 25th Round of the NSS for the Western Region.

Table 1
Distribution of Households by Size Class, Small Cultivators, Western UP, 1970/71

Size Class (acres)	No. of sample h'holds	estimated No. of h'holds	percentage %	cumulative percentage %
0.01-0.04	6	3,534	1.8	
0.05-0.09	8	3,896	1.9	3.7
0.10-0.49	125	59,957	29.6	33.3
0.50-0.99	102	47,833	23.6	56.9
1.00-1.49	73	35,245	17.4	74.3
1.50-2.49	65	30,239	15.0	89.3
2.50-4.99	33	16,581	8.2	97.5
5.00-7.49	2	974	0.5	98.0
7.50-9.99	-	-	-	-
10.00 & above	1	385	0.2	98.2
not recorded	7	3,715	1.8	100.0
all classes	422	202,454	100.0	

Source: *NSS 25th Round, No. 241, Table 1.1*

More than a third of the households in the small cultivator sample had holdings of less than half an acre, nearly 57% less than an acre, and almost 90% less than 2.5 acres. A few holdings (8%) fell into the 2.5-5.0 acre size class, with about 0.5% above this level. With the exception of one aberrant household in the 10.00 acre and above size class, no household had owned land of more than 2 acres. They relied upon leasing in to increase their holding size, as we see from the table below.

Table 2
Percentage of Area Leased In, Small Cultivators, Western UP

Size Class	percentage per household			percentage
	owned acres	leased in acres	total acres	leased
	%	%	%	%
0.01-0.04	0.01	-	0.01	0
0.05-0.09	0.07	-	0.07	0
0.10-0.49	0.33	0.02	0.35	6.0
0.50-0.99	0.62	0.09	0.71	12.7
1.00-1.49	0.97	0.32	1.29	24.8
1.00-1.49	0.97	0.32	1.29	24.8
1.50-2.49	1.42	0.54	1.97	27.6
2.50-4.99	1.91	1.21	3.12	38.8
5.00-7.49	1.50	3.86	5.36	72.0
7.50-9.99	-	-	-	-
10.00 & above	35.0	-	35.0	0
All classes	0.86	0.28	1.14	24.6

Source: NSS 25th Round, No. 241, Table 1.2

Consequently, leasing in became proportionately more important as holding size increased, so that 72% of the land cultivated by the small proportion of holdings who cultivated between 5.0 and 7. 5 acres was leased in.

The National Sample Survey does not provide a breakdown by size class of the basis on which leasing in takes place, but the table below provides some interesting information on an aggregative basis of not only the basis of tenancy but on whether the contract was recorded.

Table 3
Distribution of Households by Type of Lease In and State of Record of Tenancy Rights: Small Cultivators, Western UP, 1970/71

Type of lease in	not known	recorded	no provision to record	not recorded	no entry	total no.	%
Cash rent	13	2	2	-	-	17	18
crop share	33	14	9	4	3	63	68
any other	3	7	-	1	1	12	13
Total	49	23	11	5	4	92	

Source: *NSS 25th Round, No. 241, Table 1.5*

Crop sharing was by far the most important type of leasing arrangement, accounting for 63 households - more than 68% of the total who leased in land, with cash rent only accounting for 18% of contracts. Of the 63 households who leased land on a crop share basis in only 14 cases was this recorded. Likewise, of the 17 households leasing for cash, in only two cases was this recorded.

It has been observed by investigators in developed agricultural regions that crop-sharing arrangments are often used as a means of securing supplies of labour. Sheila Bhalla, writing about Haryana, noted that "in the context of a tight labour situation as in this area, the use of attached labourers selected from small cultivating households on a variable share contract with managed indebtedness built into it, seems to work as the farmer's insurance for assured labour supply on favourable terms, and also against the labourers' emerging bargaining power in the new situation."[*Bhalla, 1976: A28*] The fact that the bulk of the crop-share contracts were not recorded among the sample infers that the lessees claim to work the leased in land had no legal protection so that he was totally dependent upon his landlord for his continued use of the land. Accordingly, if the landlord demands that he or his family should supply labour he had no alternative but to do so.

Inevitably, therefore, as a result of a combination of small size of holding and the interlinkage of land, labour and credit contracts for those small cultivators dependent upon leasing, work on the farms of others was an important activity alongside self-cultivation. This is illustrated in the table below.

Table 4
Time Disposition of Economic Activity for Male Small Cultivators and Wage Earners, Western UP, 1970/71

	Small Cultivators		Wage Earners	
	15-44	45-59	15-44	45-59
	%	%	%	
%				
1. worked on own farm	41.5	48.7	5.4	6.2
2. worked on others farm as exchange labour	0.3	-	0.6	1.2
3. worked on others farm for salary or wage	28.3	26.1	39.4	30.9
4. as self-employed	8.7	6.9	12.6	26.0
5. as non-self-employed	8.9	3.5	16.6	20.7
6. total at work	87.7	85.2	74. 6	85.0

Source: *NSS 25th Round, No. 233, Table 1.15*

For the time-being we have chosen to look at males in the economically important age groups 15-44 years and 45-59 years. It needs to be borne in mind that these are aggregative figures and therefore do not reflect the distinctions which inevitably existed between cultivators working half an acre and those working five acres. Neither have we any way of assessing the division of paid farm work between casual and permanent labour. Taking small cultivators first, by far the bulk of their working time was spent working on their own farms - 42% for the young men and 49% for the older. Working as agricultural labourers was the next most important occupation accounting for 28% of the time of younger men and 26% of older men.

The agricultural labourer population in the Western Region was therefore composed not only of the landless but also to a significant extent of the members of small cultivator households.

This adds even more credence to the belief that Bhalla's labour tying hypothesis may well apply to Western UP as well. There is, however, also the question of whether the extensive participation of small cultivators in the paid agricultural labour force represents a process of polarisation. There is ample evidence that for India as a whole, while the proportion of cultivators in the working population declined since 1961, the proportion of agricultural labourers increased - even after taking account of changes in Census definitions. [*Bardhan, 1977: A38-A39*] Western UP was not been immune from this process. Land reforms, together with the enhanced profitability of agricultural production frequently resulted in the resumption of land under personal cultivation, leading to the transformation of erstwhile tenants and sharecroppers into agricultural labourers on an accelerated scale. [*Nayyar, 1977*] The interesting question in this context is whether the combining of personal cultivation of small holdings with agricultural labour was a step on the path towards transformation into landless labourers? Here again, the interlinkage of land, labour and credit relations are of great relevance in facilitating the process of exploitation by which production relations are transformed - leading ultimately to a capitalist mode of production based upon labour hiring, and reinvestment of the agricultural surplus. By looking at the year 1970-71 we have in fact broken into the middle of the process, for we now know that the proportion of agricultural labourers continued to increase throughout the 1970's in Western UP. [*Gov't of India: 1981: 27*]

Returning to the table, for small cultivators, non-agricultural employment accounted for nearly 9% of the time of the younger men but only 3.5% of the time of older men. The fact that young men were more likely to seek work not only outside the farm but outside of agriculture itself is interesting and relevant. In the first place, it is an indication of the inability of the farm to support all of its members and of the need for younger male members to seek work and income elsewhere with which to supplement the farm family's income. Secondly, there may well be a seasonal dimension to this "on account of the seasonal shifts of rural labour from non-agricultural work to agricultural operations during the peak growing seasons and back again during the lean months."[*Bardhan. 1977:A41*] The same comments apply to self-employment which accounted for 8.7% of the time of younger men and 6.9% of the time of older men.

Overall, while small cultivators, particularly older men, spent the bulk of their time cultivating their own holdings, subsidiary activities, particularly agricultural labour on the farms of others, were very important in providing the fairly high rate of employment we find among this sample of small cultivators in the Western region. Eighty-seven per cent of the time of younger men and 85% of the time of older men was spent in economic activities of one form or another - although the productivity of those activities, is of course, quite another matter.

Inevitably, those small cultivators who were evicted from leased land or lost their own land must seek alternative sources of income. As Kalpana Bardhan says, "the poor cannot afford to remain unemployed". As such, a considerable proportion of the landless wage earner population in the region must have comprised men from households which previously cultivated some land. However, the

population of wage-earners in the region was much more broadly based than this as is apparent from the table.

While it is apparent that for the men of landless wage earner households agricultural labour was by far the most important occupation - comprising 40% of the time of the younger men and 31% of the time of older men, self-employment was also of considerable significance. This was particularly so for older men who spent 26% of their time in this occupation, compared to just 12.6% for the younger men. This is significant as it points towards the origin of a considerable proportion of the landless labourer population. Census data indicates that along with a decline in self-cultivation there was also a decline in the proportion of workers classified as self-employed. [*Bardhan. 1977: A37*] With the modernisation of agricultural operations in Western UP and the greater use of capital supplied by the industrial sector and demand for marketed consumer goods, erstwhile village artisans who had traditionally supplied the back-up services to cultivating households found the demand for their services declining. That this was the case is reinforced by the fact that on the basis of the NSS sample younger men were not following their fathers into these traditional occupations but were seeking work elsewhere - principally in agricultural labour, but also outside of agriculture. Just under 17% of the time of younger wage-earner men and nearly 21% of the time of older men was spent as "non-self employed, i.e. in waged occupations unconnected with agricultural labour. These statistics increase in meaning when we compare them with the coresponding figures for small cultivators - 8.9% and 3.5% of time respectively for younger and older men. This seems to indicate that once the connection with the land was severed it was far more likely that individuals would seek non-agricultural employment,

whereas those who retained some land - albeit only a small parcel - were much more likely to be employed on the farms of others. This raises an important and interesting question. Did small cultivators principally work on the farms of others as their main subsidiary occupation out of choice, or because they were tied to particular employers via the interlinkage of land, labour and credit relations mentioned earlier? Alternatively, were landless wage earners more likely to seek non-agricultural employment because they were "free" to do so, having no such ties, or because there was inadequate employment available in agriculture - particularly when seasonal demand was low.

Even if this question cannot be answered, what does emerge clearly from this look at the data on time disposition is the very heterogeneous nature of the agricultural labourer population in the region. It comprised of a combination of small cultivator households of various sizes, of dispossessed ex-cultivators, erstwhile village artisans, and others who via a combination of agricultural and non-agricultural employment somehow earnt a subsistence. This is not to mention the migrant labourers from Eastern UP and further afield who swelled the agricultural labourer population of the Western Region during periods of seasonal peak demand. Such heterogeneity has important negative consequences for class consciousness and therefore for class formation among the agricultural population of the region.

It is, of course, not only men who engage in agricultural work. For women much of the agricultural work on their own farms - particularly that concerning cereal processing such as husking grains, is in fact classed as domestic work, so that women's contribution to the productive processes of agriculture often go unrecorded in the data. [*Bardhan. 1977, A42*] We have therefore limited our look at

female participation in agriculture, to that of paid agricultural labour.

Table 5
Percentage of Time spent working as agricultural labourers by female members of small cultivator and wage earner households - Western UP

Time spent working on others farm for salary/wage	Age		
	10-14	15-44	45-59
small cultivators	-	2.0	11.0
wage earners	0.4	4.7	3.5

Source: *NSS 25th Round, No. 233, Table 1.15*

The first point that needs to be made is that even these figures may be underestimates. Paid agricultural work by women in India is associated with low status, and therefore may not be revealed to data collectors. However, accepting this, the table does provide some interesting insights into the comparative importance of agricultural labour to the women of small cultivator and wage-earner households. It is of particular interest that older women from small cultivator households spent 11% of their time as agricultural labourers, whereas wage-earner women in the same age-group spent only 3.2% of their time in this occupation. This latter figure ties in with the high rate of self-employment by men of this age group among the wage-earner sample and suggests that these households did not have the same bond with agriculture as was the case of small cultivator households.

As in the case of male agricultural labourers from small cultivator households, the question has to be asked whether the women did such work because they had no alternative on account of the interlinkage of land, labour and credit relations, or because they desired such work and were better placed to secure it as a result of pre-existing family ties with landholders than were the women of landless households? Furthermore, there is the point that women

often worked as agricultural labourers during times of peak demand in order to secure a job for husbands or sons. [*Bardhan. 1985, 2213*] The fact that "in the high-growth areas, as the peasants got better off, they withdrew their women from agriculture (because) it carries the status value of social distancing from the female labourers below, and religious value in the case of Muslims" [*Bardhan. 1985: 2210*] suggests that female participation in the paid agricultural labour force was of necessity rather than choice.

It is interesting that the situation is reversed for women in the 15-44 year age group, with only 2% of the time of women from cultivating households spent as agricultural labourers, but 4.7% of the time of women from landless wage-earner households. Of course, these were women of child-bearing age, and bearing in mind the custom of withdrawing women from the agricultural labour force wherever possible, it is likely that the bulk of this age-group was engaged in domestic work. As we shall show later, the need for women from landless wage-earner households in this age group to work as labourers is an indication of extreme poverty.

2. THE AGRICULTURAL LABOURER POPULATION IN EASTERN UP

As we have already pointed out in the introduction, a larger percentage of the rural working population of Eastern UP was defined as agricultural labourers by the 1971 Census than was the case in the West - 33% compared to 22%. This was despite the fact that a much smaller percentage of the rural population in Eastern UP actually operated no land - 14% compared to 32% in the West according to the 26th Round of the National Sample Survey.

Our subsequent analysis will illustrate the reasons for this dichotomy. In the table below we present the percentage distribution

of households by size class of area cultivated for small cultivators surveyed by the 25th Round of the National Sample Survey.

Table 6
Distribution of Households by Size Class, Small Cultivators, Eastern UP, 1970/71

Size Class of area cultivated (acres)	No. of sample h'holds	Estimated No. of h'holds	Percentage	Cumulative percentage
0.01-0.04	16	8,236	3.4	
0.05-0.09	26	12,438	5.1	8.5
0.10-0.49	331	152,677	63.0	71.6
0.50-0.99	110	50,370	20.8	92.4
1.00-1.49	28	13,156	5.0	97.4
1.50-2.49	11	5,281	2.2	99.6
2.50-4.99	2	694	0.3	99.9
5.00-7.49	-	-	-	-
7.50-9.99	-	-	-	-
10.00 & Above	-	-	-	-
Not recorded	1	347	0.1	100.0
All classes	525	242,199		

Source: *NSS 25th Round, No. 241, Table 1.1*

In Eastern UP, with the exception of two households in the 2.5-5 acre size class - that represented just 0.3% of the total - all the households in this sample cultivated land of less than 2.5 acres. More than 70% had minute holdings of less than half an acre. The distribution was therefore much more concentrated towards the very smallest size classes than was the case for the Western Region where one third of holdings were below half an acre, and reflected the bias towards small holding size in the region as a whole.

As we see from the table below, leasing-in accounted for a quarter of the land area held by these households - about the same as in the Western Region

Table 7
Area Cultivated per Household under 'Owned', 'Leased In' and 'Total' by Size Class of Area Cultivated in Rural Areas: Small Cultivators, E.UP, 1970/71

Size Class acres	Per Household			
	Owned acres	Leased In acres	Total acres	Percentage of Land Leased
0.01-0.04	0.03	-	0.03	-
0.05-0.09	0.07	-	0.07	-
0.10-0.49	0.21	0.07	0.28	25.0
0.50-0.99	0.53	0.13	0.66	19.7
1.00-1.49	0.94	0.24	1.18	20.3
1.50-2.49	0.77	1.04	1.81	57.5
2.50-4.99	2.25	1.25	3.50	35.7
5.00-7.49	-	-	-	-
7.50-9.99	-	-	-	-
10.0 & Above	-	-	-	-
All Classes	0.32	0.11	0.43	25.6

Source: *NSS 25th Round, No. 241, Table 1.2*

*With the exception of the 8.5% of households who cultivated fragments of land amounting to less than a tenth of an acre, leasing-in was significant for all the cultivators in the sample. Indeed, if we exclude the two households in the 2.5-4.99 acre size class, there would have been no ownership holdings above one acre in size without leasing in. For the important 0.10-0.49 acre group, which comprised 63% of the sample, leased land amounted to 25% of the total.

In the table below we present the basis on which leasing in took place.

Table 8
Distribution of Households by Type of "Lease In and State of Record of Tenancy Rights: Small Cultivators, Eastern UP, 1970/71

Type of lease in	not known	recorded	no provision to record	not recorded	no entry	total no.	total %
Cash rent	3	2	1	2	3	11	7,6
Crop share	11	15	11	5	5	47	32,4
Any other basis	15	13	36	14	9	87	60,0
Total	29	30	48	21	19	145	

Source: *NSS 25th Round, No. 241, Table 1.5*

By far the most important category of leasing in was that which was lumped together as "any other basis" - accounting for 87 households out of a total of 145 - 60%. Unfortunately, the NSS did not specify what type of arrangement this included, but the fact that in only 13 cases - 13% of those included in the category - was the lease recorded, indicates predominantly informal oral arrangements.

Crop sharing accounted for 47 households - 32% of the total. Although this arrangement was more likely to be recorded - in 15 cases - this still leaves a substantial majority in which there was no record of tenancy rights. Cash renting of land was much less significant in the Eastern Region, accounting for just 8% of the total compared to 18% in the Western Region.

What we observe in the Eastern Region among these poor cultivators is a predominance of various informal tenancy arrangements, with crop sharing accounting for a significant minority of the total. Although this situation bore some superficial resemblance to that already identified in Western UP, there were in fact fundamental differences in the underlying social relations of production which rendered the dynamics of the process of exploitation engendered by these arrangements rather different.

In Eastern UP at this date the mode of production in agriculture

was predominantly semi-feudal, with only pockets of capitalist infiltration. Various forms of economic and extra-economic coercion were common, tying labourers-cum-tenants to landlords in relations of semi-feudal dependence. Miriam Sharma, writing about the village of Arunpur, near Benares in Eastern UP, gives a graphic account of the results of the interlinkage of land, labour and credit relations in such a situation:

> ". . . landed peasants grant part of their land to labourers as part of their wage. To prevent any legal tangles whereby the tiller may eventually claim the land he works as his own, the plot is often changed each year. This system of rotating the sub-let land is so flexible that it escapes the law and labourers are reluctant to claim for fear of losing their jobs and land. Although there is no shortage of labour in Arunpur so that one pair of hands can easily replace another, such replacements are often difficult, if not impossible. The credit that a labourer obtains from the landowner tends to bind them together permanently, and the debts of the father are inherited by his sons. When such debts accumulate at an annual interest rate of 20% to 36%, repayment at the present "wage" becomes impossible."[*Sharma, 1985: 70*]

That such a situation was widespread in Eastern UP in the early 1970s is not amenable to direct evidence. However, the circumstantial evidence in its favour is strong as we have shown in earlier chapters. This is further enhaned by the data below showing the percentage of time spent in various economic activities for the adult males of small cultivator and wage-earner households in the Eastern Region.

Table 9
Time Disposition of Economic Activity for Male Small Cultivators and Wage Earners, Eastern UP, 1970/71

	Small Cultivators		Wage Earners	
	15-44	45-59	15-44	45-59
	%	%	%	%
1. worked on own farm	23.8	29.1	1.0	3.6
2. worked on others farm as exchange labour	3.0	1.2	2.8	-
3. worked on others farm for salary/wages	45.0	44.21	51.2	42.0
4. as self employed	2.8	3.7	5.6	24.7
5. as non self-employed	10.9	5.7	10.4	5.4
6. total at work	86.4	81.7	70.9	75.8

Source: *NSS 25th Round, No. 233, Table 1.15*

Taking small cultivators first, it is significant that for men in the 45-59 year age group only 29.1% of their time was spent working on their own farm, and for the 15-44 year age group only 23.8% of their time. This was a much lower percentage than was the case for men in the Western Region where 48.7% and 41.5% of time respectively was spent working on their own farm. The reason for this was the very much smaller average size of holding in Eastern UP, just 0.43 of an acre compared to 1.14 acres in the West. This was the result of greater population density, unfavourable historical land tenure arrangements and the subsequent land reforms in the region. Miriam Sharma's account of the situation in Arunpur is of relevance in this respect:

> "With the abolition of landlorship (zamindari) in Uttar Pradesh in 1950, those who had been occupancy-tenants, for the most part those who now have land in Arunpur, become "owners" of the land. Kurmis complain that they have not been able to increase their holdings since zamindari abolition. When land comes on to the market it is "grabbed up by Bhumihars. it is they who gained the most." Ironically, Chamars lost the most by abolition. The land that they used to lease (c. 12½ acres) is no longer theirs. It passed into the hands of Kurmis, Bhumihars, and others by fraudulent means. Today they are practically all

> landless and rely on their labour and the land received as part of barely subsistence wages to keep body and soul together. By losing their land and relinquishing their traditional occupation as removers of dead animals and leatherworkers, they have become totally dependent upon upper-caste Bhumihars and Brahmans as ploughmen and workers on their land."[*Sharma, 1985, 68*]

It is therefore not surprising that small cultivators in Eastern UP were extremely dependent upon agricultural labour. Indeed, in terms of time expended, working on the farms of others for a wage took up considerably more time than working on their own farms - about 45% for both older and younger men - considerably in excess of the average of 27% in the West. This also answers the question posed at the beginning of the Chapter of why, despite the lower overall landlessness in the Eastern Region, the percentage of agricultural labourers was higher. It is quite clear that there was a significant proportion of the rural population who cultivated such minute holdings that, as in the case of this sample, agricultural labour was in fact their principal occupation in terms of time-disposition. This brings us back to the proposition that the interlinkage of land, labour and credit relationships, particularly within the context of a predominantly semi-feudal mode of production, gives rise to extreme degrees of exploitation of the labouring population.

There is also the question of whether Bhaduri's theory of land alienation outlined below fits the facts for Eastern UP outlined . As in all Bhaduri's work on the theme of semi-feudal agriculture it postulates a method of primitive accumulation which relies primarily on the economic compulsions generated by indebtedness. In the face of massive open and disguised unemployment the poor peasant has few economic alternatives but to attempt to wrest a living from his meagre holding. As a result he clings tenaciously to his land despite the fact that this may entail very exploitative production relations.

The process of land alienation in such circumstances relates the dwindling ability of the poor peasant to repay his growing debt obligations - frequently to his landlord. In chapter two we set out in detail how it was possible for the burden of debt to be perpetuated and accumulate as a result of a poor peasant's need to take consumption loans in order to surive from harvest to harvest at interest rates which are implicit in the seasonal fluctuations in grain prices.

Provided the peasant can pay his interest obligations from his current output he is safe from land alienation, but once his debt begins to accumulate and compound and he is unable to meet his interest obligations from his current output then he must agree to a demand to transfer his land as a medium of last resort in settlment of his otherwise outstanding debt. It is at the point when settlement of debt obligation through product becomes absolutely impossible that this occurs. Bhaduri has stylised this mechanism in the following equation:

$$r_t = \min [w^{\oplus}_t, (1 - \sigma)d_{t-1}]$$

where

r_t = repayment in terms of paddy

$w^{\oplus}_t$ = the gross income in paddy of the peasants

$(1 - \sigma)d_{t-1}$ = outstanding debt obligation including interest charge in terms of paddy [*Bhaduri, 1983: 87*]

This behaviour equation indicates how the small indebted peasantry will try to retain their land for as long as possible. They may repay their entire gross income, $w^{\oplus}_t$, in a particular period, necessitating them borrowing even more heavily in the next period. It is only when the total debt obligation of a period $(1 - \sigma)d_{t-1}$ exceeds even the gross income of that period that there is no way out

and the unpaid part of the debt obligation must be settled in terms of land as a medium of last resort. This attempt to retain land for as long as possible, says Bhaduri, also arises from the typical irreversibility of such transfers in backward agriculture. [*Bhaduri, 1983: 88*]

Self employment was not very significant among the small cultivators of the Eastern Region, but non-agricultural employment, designated as "non-self-employed" was, accounting for 5.7% of the time of older men and nearly 11% for younger men - higher percentages than in the Western Region. In view of the low level of industrialization in the Eastern Region it is not readily apparent what form such employment might take.

When we look at wage earner households a very interesting point emerges. Older men from these households spent 42% of their time working as agricultural labourers. This is a smaller percentage of their time than for the men of small cultivator households. Younger men from wage earner households spent 51.2% of their time as agricultural labourers - the highest of any group - but not significantly so.

Self-employment was of particular importance for older male wage earners - accounting for nearly a quarter of their time. However, it was much less important for men in the 15-44 year age group. As in the case of the Western Region, this suggests that many wage earners were drawn from the ranks of erstwhile village artisans. With the breakdown of the traditional jajmani relationships in the Eastern Region, younger men were no longer able to earn a living from these occupations and were therefore more reliant upon a combination of agricultural labour and non-agricultural work. The latter accounted for practically the same proportion of work time for wage earners in

the Eastern Region as was the case for small cultivators. If they were unable to find work in such occupations then they spent their time unemployed, as witnessed by the fact that the 15-44 year age group of wage earner men were only occupied for 71% of their time, compared to 86% for the younger men of small cultivator households. This situation parallels that found in the Western Region.

A most interesting point to emerge from this look at the pattern of landholding, tenure and occupational structure among poor households in Eastern UP was that as a result of the very small average size of holdings, working on the farms of others was in fact the most important single occupation of small cultivator households in the sample. This points towards a much more homogeneous agricultural labourer population in the Eastern Region than was the case in the West - for many holdings were so small as to render the majority of the small-cultivator population in the sample almost landless. As a result, the competition for work as agricultural labourers must have been intense. This was likely to have two effects - firstly to push wages down - which we shall examine in the next section - and secondly to enhance the capacity of landlords to exploit their workforce via oppressive semi-feudal production relationships. This involves the very poorest peasants being caught up in a cycle of indebtedness, and bound to the landlord/employer via usury and small plots of sharecropped land, from which they could easily be dispossessed, as outlined earlier. Although this class of petty cultivators/tenants/agricultural labourers was huge and fairly homogeneous, the oppressive nature of the production relations, along with the lack of employment opportunities outside of agriculture, rendered its members largely submissive and incapable of concerted action.

A most interesting and significant finding for the Eastern Region concerns the involvement of women in the agricultural labourer population.

Table 10
Percentage of Time Spent Working as Agricultural Labouers by Female Members of Small Cultivator and Wage Earner Households, Eastern UP, 1970/71

	Age			
Time spent working on others farm for sal/wage	10-14 %	15-44 %	45-59 %	All Ages %
Small Cultivators	10.2	21.3	19.9	19.7
Wage Earners	17.9	30.3	23.8	31.2

Source: *NSS 25th Round, No. 233, Table 1.15*

For all age groups this occupation takes up 20% of the time of women of small cultivator households and 31% of the time of the women of wage-earner households. Even girls between the ages of 10 and 14 spent a significant proportion of their time working as farm labourers - 10% for small cultivators and 18% for wage earners. This was a quite different situation from that in the Western Region where female labour as recorded in the data was less prevalent, and reflected the greater depth of poverty in the Eastern Region, as will be shown in a subsequent section. Kalpana Bardhan, has highlighted many of the problems facing female labour, particularly in underdeveloped regions where irregularity and inadequacy of employment is as much a factor in the poverty of the rural landless and of casual labourers in general as are low wage rates.

> "For women, this is a particularly severe factor . . . the dead season in agriculture can add up to six months or even more in many depressed regions. . . The supply of impoverished female labour can be more easily treated as a reserve, to be called up in peak seasons and sloughed off in slack ones . . . Landed employers in a village can and do, in effect, tie down the women by hiring the men. Often, they can even get the woman's labour virtually free or at lower than its low market wage, by giving her husband or son preferential hiring in the slack season, or a

loan in cash or grains, though at sky-high interest in off-season or in a family crisis.", [*Bardhan, 1977, A2213*]

CONCLUSIONS

It is clear that in both regions there existed a substantial class of agricultural labourers. But it is also clear that they were composed differently, and subject to different production relationships.

In the Western Region we have identified a heterogeneous group whose members included a large class of landless wage-labourers who engaged in non-agricultural as well as agricultural labour. Within this group of landless labourers also existed a class, composed mostly of older men, who combined self-employment in the village with agricultural wage labour. A significant proportion of the agricultural labourer population was also drawn from households who possessed some land and who combined cultivation of their own holdings with work on the farms of others - largely eschewing non-agricultural forms of wage labour. But even these landed labourers were a varied group, comprising a majority with holdings below one acre who must enter the labour market out of necessity, alongside a class of younger men from more substantial holdings. This latter group was identified in Haryana by Sheila Bhalla, and in view of the similarity in socio-economic structure, is likely to exist in Western UP as well. [*Bhalla, 1976: A28*]

There was labour tying in the Western Region, but this was the result of an interlinkage of land, labour and credit relationships which emerged as a result of the development of capitalism in the countryside rather than as a result of semi-feudal production relationships as was largely the case in the Eastern Region.

In the Eastern Region there was a more homogeneous agricultural labourer population. Over 90% of holdings in the NSS sample of small cultivators were below one acre, and more than 70% below half an acre. As a result, small cultivators did in fact spend more time working on the farms of others as wage labourers than in cultivating their own holdings. Many of these cultivators leased in land on various forms of informal and unrecorded contracts, leaving them very vulnerable to exploitation by employer/landlord.

Landless wage-earner households were unable to obtain substantially more farm work than small cultivators, and while many older men from the landless classes still spent a considerable proportion of their time working in self-employed occupations in the village, the availability of non-agricultural alternatives were inadequate to fully employ the younger men.

Together, these groups made up a fairly homogeneous class of primarily agricultural labour households, whose income from this source was supplemented in the one case via cultivation of small holdings, and in the other by self-employment as village artisans or petty traders. But in the Eastern Region, unlike in the West, the ranks of the agricultural labourer population was swollen by the participation of women workers, particularly from landless households. This adds a new dimension to the analysis which we shall pursue when we look at wages in the next section.

PART II

WAGES AND INCOMES

1. WAGES - WESTERN AND EASTERN UP COMPARED

The level and determination of wages is such a complex subject that it should really form an entire study in its own right. In the context of the current work, however, we shall be restricting our aims to a brief look at the levels of wages for male and female small cultivators and wage earners from agricultural and non-farm activities in the two regions during 1970-71.

The study of wages presents great problems. The first concerns the reliability of the data itself. Analysts have used various sources, among which the Ministry of Agriculture's "Agricultural Wages in India" published annually, the Quarterly Bulletins of Statistics published by the Director of Economics and Statistics, UP, and the data collected by the National Sample Survey Organization, are the most notable. Each set of data is in some respects imperfect. The NSS data has the advantage that it is collected from a fairly large sample of villages, although it is severely limited in terms of the number of years covered. [*Vaidyanathan, 1986: 129*]

Whatever data source is used there is always the problem that money wages do not include payments in kind, particularly meals served at work. [*Vaidyanathan, 1986: 133*] Vaidyanathan criticised the NSS consumption data on the basis of this latter point, so it is probable that the NSS data presented subsequently is to some extent an underestimate of agricultural wages. The problem is further compounded, because we have no way of knowing whether such biases are consistent between the regions.

Perhaps the most important problem concerning wages is that taken

In isolation it is not possible to examine the standard of living of the recipients, nor when looked at over time, changes in the standard of living, without at the same time examining the prices of commodities that enter into consumption. The familiar index number problem compounds the difficulties when we seek to make comparisons over time or between regions. In view of all these qualifications, it is therefore not surprising that investigators have often come to widely differing conclusions not only on the actual level of real wages at different times and places in India, but also the consequences of changes in wages and prices for the extent and depth of poverty. [*Nayyar, 1976 177*][*Lall, 1976, 177*]

In order to set our examination in some type of context, we have presented below a table from Rohini Nayyar's article, based upon data from the Quarterly Bulletins of Statistics, showing money wage rates, consumer price indices, and consequent real wage rates for Western and Eastern UP between 1955-56 and 1973-74.

Table 11
Average Daily Money Wage-Rates, Consumer Price Indices and Real Wage-Rates of Agricultural Labourers in UP from 1955-56 to 1973-74

Year	Western UP			Eastern UP		
	Money Wage Rates	Consumer Price Indices	Real Wage Rates	Money Wage Rates	Consumer Price Indices	Real Wage Rates
	(Rs.)		(Rs.)	(Rs.)		(Rs.)
1955-56	1.19			0.58		
1956-57	1.31			0.78		
1957-58	1.28	100	1.25	0.72	100	0.72
1958-59	1.51	na	na	0.73	na	na
1959-60	1.46	110.2	1.32	0.70	102.9	0.68
1960-61	1.54	115.3	1.34	0.69	103.2	0.67
1961-62	1.57	116.8	1.34	0.66	105.3	0.63
1962-63	1.60	119.8	1.34	0.75	105.5	0.71
1963-64	1.62	135.3	1.19	0.78	123.6	0.63
1964-65	2.17	177.8	1.22	1.19	177.1	0.67
1965-66	2.26	178.0	1.27	1.41	186.9	0.75
1966-67	2.75	229.3	1.20	1.80	232.4	0.77
1968-69	3.26	215.1	1.51	2.05	254.4	0.81
1969-70	3.37	227.8	1.48	1.92	197.2	0.97
1970-71	3.47	214.6	1.62	1.97	217.1	0.91
1972-73	4.02	273.0	1.47	2.30	261.0	0.88
1973-74	4.60	351.8	1.31	2.85	346.5	0.82

Note: Data for 1971-72 not obtainable.

Source: *Government of UP, Directorate of Economics and Statistics, Quarterly Bulletin of Statistics* quoted by *Rohini Nayyar, 1976: 1772*

This data is both interesting, and relevant to our study. Over the entire period, money wage rates were considerably less in Eastern UP than in the Western Region, although the discrepancy was less for more recent years. However, money wage rates are an inadequate measure of welfare. Ashwani Saith lays great stress on the importance of price deviations in accentuating poverty.

> "In terms of explaining the fluctuations in the level of poverty, price deviations are considerably more important than production deviations around their respective trend values . . . price rises accentuate poverty rather more powerfully than production improvements alleviate it . . . as relevant price index rises in a trend sense, poverty levels could also be expected to drift upwards to the extent that money earnings of the poor fail to keep pace with inflation."[*Saith, 1981: 204*]

Saith sees the process of agricultural growth itself as important in generating

the conditions leading to price inflation of food grains.

> ". . . the structural transformation accompanying the agricultural growth generated by the new technology has altered the "rules of the game" through which food prices are formed in the Indian economy. The power of the kulak lobby has increased phenomenally, and this has manifested iself in control over the Government's food price determination policies. So while the Green Revolution has held out the prospect of diminished poverty through increased production and lower (anticipated) food prices, its potential benefits have been pre-empted by changes in the rural power matrix generated by the growth."[*Saith, 1981: 205*]

From the above data it is clear that the consumer price indices for agricultural labourers rose by similar amounts in both regions leaving real wages in 1973-74 little above their 1957-58 figures. Of course, during the intervening period there were substantial price fluctuations, so that conclusions on the extent to which real wage rates rose, fell or remained constant are affected by the choice of an end year to the series.

The 25th Round NSS data refers to the year 1970-71. From the Quarterly Bulletin of Statistics data above we see that for the Western Region the consumer price index showed a marked fall for that year which resulted in the highest real wage rate of the entire series at Rs. 1.62. However, this improvement was subsequently not sustained so that by 1973-74 real wage rates had fallen back to Rs. 1.31. In the Eastern Region the peak in real wages for the series was reached a year earlier in 1969-70 with Rs. 0.97, so that our reference year, 1970-71, represented the beginning of the downturn, culminating in a real wage rate of just Rs. 0.82 for the year 1973-74 - just 63% of the real wage rate in Western UP.

Returning to the year 1970-71 the data shows a money wage rate for Western UP of Rs. 3.47 - more than 55% greater than the money wage

rate of Rs. 1.92 for Eastern UP. However, taking real wages, the discrepancy was rather less, with a figure of Rs. 1.62 for Western UP - 45% greater than for Eastern UP where real money wages were Rs. 0.91.

Whether we look at money or real wage rates, a key point is that agricultural labourers were considerably worse off in this respect in Eastern UP than their cohorts in the West, and that this was a situation which persisted over a long period of time. We shall address ourselves to this problem in our examination of the 25th Round data on wages for the poorest 10% of rural households in each region in the table below.

Table 12
Wage Rates - Western and Eastern UP compared - 1970/71

Occupations	Others Farm		Non Farm		All	
	Males	Females	Males	Females	Males	Females
Rs. per day	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Western UP						
Small Cultivators	2.79	2.61	2.85	1.22	2.81	2.09
Wage Earners	2.54	2.32	3.06	2.51	2.71	2.41
Eastern UP						
Small Cultivators	1.66	1.19	2.30	1.43	1.79	1.20
Wage Earners	1.56	1.12	2.58	0.79	1.73	1.05

Source: *NSS 25th Round, No. 237 Tables 2.15.2 and 23.15.4*

Comparing the NSS figures for male farm wages with the agricultural money wage rates in Table 11 for 1970-71, it is clear that the NSS figures were lower. In the case of the Western Region an average for the farm earnings of small cultivators and wage earners works out at Rs. 2.67, compared to Rs. 3.47 according to the Quarterly Bulletin - 30% more. For Eastern UP the discrepancy was not quite so marked with an average figure of Rs. 1.61 according to the NSS data and Rs. 1.97 - 22% more - for the Quarterly Bulletin. This may in

part have been the result of biases introduced as a result of the different methodology used by the NSS Organization and the Directorate of Economics and Statistics. However, it might also have been the result of the fact that the NSS data dealt specifically with the very poorest section of the rural population, whereas the Quarterly Bulletin data referred to agricultural labourers in general.

The market for agricultural labour contains many imperfections. We have laid great stress on the interlinkage of land, labour and credit relations in both regions, and it is to be expected that a labourer who is caught up in such an exploitative form of production relationship is subject to lower wage rates than one who is not. Agricultural labourers who fell within the 10% of poorest households were far more likely to be subject to such production relations and therefore to have had lower wages than those who were better off. It is therefore not surprising to find that the wage data from the NSS 25th Round was lower than that of the Quarterly Bulletin. This was particularly so in the Western Region, where, as we have already pointed out, the agricultural labourer population in general was quite heterogeneous and could be expected to include a class of labourers from better off cultivating households who entered the labour market largely out of choice and were not subject to the same exploitative conditions as the poorest, and were therefore in receipt of higher wages.

Returning to Table 12, and taking males first, the difference in money wage rates for farm work for both small cultivators and wage earners was very considerable between the two regions. For Western UP the wages of small cultivators worked out at Rs. 2.79 per day, 42% above the Rs. 1.66 of small cultivators in the Eastern Region. For the men of wage earner households the discrepancy was even greater,

with a daily wage rate of Rs. 2.54 in the Western Region, 62% above the figure of Rs. 1.56 for the Eastern Region. We know from Table 11 that this discrepancy in money wage rates between the two regions persisted over a long period of time, although it has declined during the 1970s because wages in the East rose faster than in the West.

We also know that the Consumer Price Index No. for Agricultural Labourers in each region in 1970-71 differed very little, 214.6 in the West and 217.1 in the East, so that the discrepancy in real wages between the regions was nearly as great as that for money wages. However, there are problems when we try to assess what this means in terms of comparative standard of living, and hence the relative well-being of agricultural labourers between the two regions. This is due to the index number problem. This will be discussed fully in Chapter 9, but to state briefly, the set of prices, weights and commodities on which the original indices were based differed between the regions and therefore make direct comparison very difficult. This is compounded by the fact that in poor regions a very large part of the wages of agricultural labourers consists of meals to be consumed by the labourers at work, [*Bardhan, 1977, 1103*] so that these money rates may well over-estimate the true wage differentials between the regions.

That being so, it is unlikely to fully account for what were really very large differences, particularly for landless wage earners, which must reflect the differential bargaining position of agricultural labourers in the two regions. In the Eastern Region low productivity, high population density, extremely small holding size, and the pervasiveness of semi-feudal production relationships reduced the bargaining power of labour, so that employers needed only pay the minimum wage needed for subsistence. By contrast, in the Western Region the higher productivity of agriculture was likely to result in

higher money wage rates because of the relatively less abundant supply of labour, particularly at times of peak seasonal demand such as harvest.

The discrepancy between the farm wages of women in the two regions was even greater than that for men. Females from both small cultivator and wage-earner households in Western UP could expect to receive more than double the money wage rates of their cohorts in the Eastern Region. Obviously the same factors were at work here as in the case of the discrepancy between male wage rates in the two regions, but some additional forces come into play which apply only to women. Of particular relevance is the fact that not only was the female workforce larger in Eastern UP, but the proportion who were classified as agricultural labourers by the 1971 Census was much greater - 65.3% compared to 28.98% in the Western Region. The bargaining power of these women was therefore severely limited, and they were likely not only to receive very low wages but to spend much of their time unemployed. As Kalpana Bardhan comments:

> The extent of seasonal unemployment and drop in earnings for women labourers who are the least likely to be voluntarily unemployed or be deterred by constraints of status-propriety in seeking work are far more severe in the depressed rural regions. Gender gaps in seasonal wage spread and in days of unemployment also tend to be wider there compared with faster growing regions, or the already more developed ones."[*Bardhan. 1985: 221*]

An interesting observation which applies to both regions and both sexes, and which seems to go against conventional wisdom is that the money wage rates for individuals from small cultivator households were higher than those for landless wage-earners. There are several possible explanations. It may well be that small cultivators in the main provided casual labour, whereas landless households provided permanent labour. Sheila Bhalla maintained that because of its greater certainty, permanent labour commands a lower wage rate than

casual labour. [*Bhalla, 1976*] However, it might equally as well be because landless wage earners were more likely to be paid wages as meals in kind - in order to ensure they were fit to carry out their work.

Let us now turn our attention to non-farm wages, concentrating first upon the male labour force. Significantly, there was much less discrepancy between the regions for non-farm wages than was the case for agricultural wages. This applied equally to small cultivators and wage-earners; in the case of the former, non-farm wages averaged Rs. 2.85 in the West, 24% above the Rs. 2.30 in the East. For wage earners the difference was even less with Rs. 3.06 in the West - 18% above the Rs. 2.58 in the Eastern Region.

Non-agricultural activities are far less subject to the type of repressive production relationships frequently found in agriculture, particularly in the Eastern Region, and it is therefore not surprising to find a greater uniformity of non-agricultural wages between the regions than was the case for farm work. However, the backward nature of the economy in Eastern UP, and in particular the poorly developed industrial base, rendered the availability of such employment more limited than in the West. For those fortunate enough to secure such employment, wages were higher than could be obtained in farm work, particularly in the Eastern Region, where the differential averaged more than 50%. Interestingly, in both regions males from wage-earner households could command slightly higher non-farm wages than could males from small cultivator households - a reversal of the situation in agriculture. This presumably results from the fact that the landless can commit themselves more fully to non-agricultural occupations than can those with land who need to dovetail work on their own holdings with supplementary employment.

A more complex picture arises when we look at womens' wages in non-agricultural activities. There were very large differentials in each region between the wages the women of small cultivator households earnt and those of women from wage earner households. In Western UP the non-agricultural wages of wage-earner women at Rs. 2.51 were more than twice the figure of small cultivator women at Rs. 1.22 - and indeed only 20% below that of their male cohorts. This was a complete reversal of the situation for men, and suggests that these two groups were engaged in quite different activities. Having no ties with the land it is more likely that wage-earner women were occupied in employment which was in some respect linked to the urban economy, with its higher wage rates, whereas the women from small cultivator households were more likely to be employed in activities which were rurally based such as processing of agricultural products or handicrafts, with their consequent lower wages.

In the Eastern Region the situation was reversed, with the very small proportion of small cultivator women who obtained non-farm work enjoying wage rates of Rs. 1.43 per day which was more than 80% above the Rs. 0.79 average wage of wage-earner women. This latter group was largely drawn either from the very oldest in the labour market, i.e. those over 60, or the very youngest, i.e. those under 14. This of itself provides the clue to why their wage rates were so abysmally low. These landless wage-earner women were at the bottom of the pile of poor people in the region. Without land or resources, and as we shall show subsequently, often without a male breadwinner in their household, they were a largely destitute group who earnt their meagre wages wherever they could

2. INCOMES

In this section we shall examine incomes and the contribution of different economic activities to income generation among households classified by annual receipt class. As in earlier sections, in the interests of clarity, we shall take each region separately.

2.1 INCOMES - WESTERN REGION

In the table below we present the income per household and the percentage of households by receipt class for small cultivator and wage earner households in the Western Region.

Table 13
Annual Receipts per Household in the Western Region, 1970/71

Annual Receipt	Total Receipts		% of households in each receipt class			
	small cultivators	wage earners	small cultivators		wage earners	
Rs.	Rs.	Rs.	%	cum %	%	cum %
Below 300	209	142	2.8		2.2	
300-599	461	510	11.8	14.6	5.5	7.7
600-999	842	838	21.6	36.2	21.4	29.1
1,000-1,999	1,399	1,396	49.3	85.5	47.9	77.0
2,000-2,999	2,346	2,472	10.7	96.2	13.3	90.3
3,000 & above	4,009	4,156	3.8	100.0	9.7	100.0
All classes	1,316	1,529				

Source: *NSS 25th Round, No. 241, Tables 2.1.A and 2.1.B*

Some interesting observations emerge from the table above; the first being that the average income of wage-earner households in the Western Region was 16% higher than that for small cultivator households, despite the fact that the average number of earners per household was almost identical at 1.81 for small cultivators and 1.78 for wage earners. Secondly, the very poorest wage-earner households had significantly lower total incomes than did small cultivator households. The reason for this was the absence of an adult male

earner in 62% of these households - leaving the woman as the breadwinner in the majority of cases. For her not only were wages lower, as we saw in the previous section, but work opportunities were much more limited. Bina Agarwal has noted that in high growth areas such as Western UP "employment opportunities for female agricultural labour have not been rising as much as the supply of such labour, and the consequent increase in involuntary unemployment has been more for female than for male labour."[*Agarwal, 1986: 211*]

Thirdly, the proportion of households with incomes in excess of Rs. 2,000 per annum was greater for wage earners for whom this group comprised 23% of the total, compared with small cultivator households who only had 14.5% of their total above this level.

Overall, therefore, the range of inequality was greater for landless wage earner households - reflecting the heterogeneous nature of its composition and in particular the capacity of some housholds to earn the relatively high wages paid in non-farm employment.

In the table below we present a breakdown of the contribution of different economic activities to household receipts.

Table 14
Contribution of Different Economic Activities to Total Receipts - Small Cultivator and Wage Earner Households in the Western Region, 1970/71

	Small Cultivators						Wage Earners			
Annual Receipt Class	Net Income from Farm		Net Income from other Sources		Wage Income		Livestock & Garden		Other Receipts	
Rs.	Rs.	%	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Below 300	136	65.0	73	35.0	95	67.2	28	19.2	18	12.9
300-599	206	44.7	255	55.3	317	62.2	53	10.4	140	27.4
600-999	348	41.3	494	58.7	632	75.4	133	15.9	73	8.7
1,000-1,999	649	46.4	750	53.6	830	59.5	326	23.3	240	17.2
2,000-2,999	1,067	45.5	1,279	54.5	1,173	47.4	589	23.8	711	28.7
3,000 & above	2,199	54.9	1,809	45.1	1,356	32.2	1,466	34.8	1389	33.0
All classes	612	46.5	705	53.5	815	53.3	377	24.7	337	22.0

Source: *NSS 25th Round, No. 241, Tables 2.1A and 2.1B.*

The first point to make concerning small cultivator households is that there was a correlation between receipt class and the absolute amount of net income generated upon the farm. This ranged from Rs. 136 for the poorest group to Rs. 2,199 for the richest. One would therefore expect receipt classes to correlate with holding size. It is significant that for the poorest group farm income comprised 65% of total income with only 35% contributed from other sources despite what must have been a very small size of holding. This leads to the obvious conclusion that alongside small holding size, the main problem confronting this group - and indeed the cause of their extreme poverty - was unemployment.

The larger the holding the more likely was the household to have alternative ways of earning a living, particularly, as we saw earlier, from agricultural labour. To some extent this was due to the larger number of earners on farms at the upper end of the distribution, but as we see from the table below this did not fully account for the discrepancy.

Table 15
No. of Earners per Household - Western Region, 1970/71

Annual Receipt Class	Small Cultivators	Wage Earners
Below 300	1.34	1.05
300-599	1.20	1.03
600-999	1.62	1.33
1,000-1,999	2.03	1.77
2,000-2,999	2.23	2.62
3,000 & above	2.84	2.78
All classes	1.87	1.75

Source: *NSS 25th Round, No. 237, Table 2.3.A*

The fact that the number of earners per household was not significantly different for receipt classes up to Rs. 1,000 reinforces our earlier comment that the poorest households were unable to obtain an amount of off-farm employment sufficient to either employ them adequately or to provide an adequate income. By contrast, cultivators with more substantial holdings were much more likely to be able to obtain work on the farms of others. This raises some very interesting questions; why should employers have been more disposed to employing workers from the more substantial end of the small cultivator population than from those at the bottom end? There are several possibilities. First, as highlighted earlier, small cultivators in this sample achieved larger holdings by leasing in land, particularly on a share-crop basis. We suggested that this was a means of larger landholders securing labour in the tight labour situation of the high productivity agriculture of Western UP with seasonal peak demands for labour at times of sowing and harvesting. At the same time it restricted the capacity of the agricultural labour force to organize collectively. Related to this latter point, employers may well have been reluctant to employ those who had no such ties and who were therefore more likely to organize themselves to achieve higher wages and/or conditions. There may also have been a

reluctance of farmers in an advanced area such as Western UP to employ the near destitute, whose efficiency may well be impaired by inadequate nutrition. Obversely, although women were not over-represented among this sample of the poorest small cultivator households, the elderly or infirm may well have been - and it may be this fact that resulted in them progressively selling off land, to become not only the least employable of the small cultivator population but also those with the smallest plots.

There is also the possibility that causation may run in the opposite direction, in much the manner of Bhaduri's theory as outlined in Chapter 4. Western UP, as has already been shown, is a prosperous agricultural region. The "capitalist tendency" was well-established even in 1970-71 with reinvestment of agricultural surplus and widespread use of hired labour by larger landholders. For the two principal commercial crops of wheat and sugarcane cultivation, it is clear from the Farm Management Study of Muzaffarnagur District examined in Section 1 of Chapter 6, that as early as 1969-70 the traditional inverse relationship between size of holding and productivity, had disappeared, with every possibility that increasing returns to scale was likely to replace the current situation of constant returns. In such circumstances, says Bhaduri, employers could pay relatively high wages. Indeed, in Section 2.1 of this chapter we showed that both money and real wages of agricultural labourers in the Western region were substantially higher than in the East. This meant that those in employment were not caught in the type of debt trap outlined earlier for the Eastern Region, and which resulted in the progressive loss of their land. Being in receipt of wages that were possibly higher than the return to labour from cultivation of their own holding, they were able to break the cycle of

indebtedness and retain their land. This could well be the reason why small cultivators spent more time working on the farms of others than did landless wage-earners. It is precisely because they managed to obtain this employment that they were able to retain their holdings, whereas the landless wage-earner population contained, among others, those who lost their land as a result of a process of differentiation which relied among other things upon the operation of a debt mechanism along the lines suggested by Bhaduri.

Let us now turn to the contribution of different economic activities to the incomes of landless wage-earner households. We first notice that wage income comprised the largest input to all but the Rs. 3,000 and above class of wage-earners. Although there were more earners per household in the higher receipt classes this by no means accounted for the very wide differentials in the absolute amount of wage income, which ranged from just Rs. 95 for households with less than Rs. 300 annual income and who had an average of 1.05 earners to Rs. 1,356 for households in the above Rs.3,000 annual income class, who had an average of 2.78 earners. As in the case of the poorest small cultivators, the poorest wage earners must therefore have spent a considerable proportion of their time unemployed. However, unlike the situation for small cultivators, women were over-represented among this group with a ratio of nearly 2 women to every 1 man. [*NSS, 1970/71, No. 232: Table 3.2*] It would be interesting to know the extent to which these women come from the oldest age group, i.e. over 60, which certainly contributes the largest proportion of female agricultural labourers among the women of wage-earner households in the region. If so, as is likely, age and infirmity would probably account for a high rate of unemployment, and hence their very low incomes. It is also likely that such households were composed of a

single individual - i.e. a widow.

As the absolute amount of wage income increased so did the absolute amount of income generated via livestock and garden produce, which was in fact the most important source of income for households with annual receipts in excess of Rs. 3,000. Once again, the larger number of earners in the higher receipt classes was an enabling factor, but did not fully account for the discrepancy between the absolute contribution of this source of income between lower and higher receipt classes. This raises the question of the extent to which their higher incomes from wages enabled these households to invest in livestock and horticulture, and so to raise their overall receipts.

Unfortunately, the NSS did not specify the composition of the third item - other receipts, for the wage earner population, but the fact that we know from the section on time disposition that self-employment is of considerable importance to a large number of wage-earner households, it must be a significant item in this total. For the poorest households "other receipts" were negligible, contributing a total of only Rs. 18 per household, whereas for the better-off group with more than Rs. 3,000 income other receipts contributed Rs. 1,389 per household.

There are some important conclusions to be drawn from this examination of receipts for wage-earner households in the Western Region. Firstly, it demonstrates once again the heterogeneity of the wage-earner population of the region. At the bottom end were those who depended overwhelmingly upon wage-labour, very largely in agriculture for their incomes, and who spent a considerable proportion of their time unemployed. Women, particularly elderly women, were over-represented in this group. Other sources of income were of only

marginal importance to them. By contrast, at the top end of the income distribution of this sample of wage-earners were those who combined several sources of livelihood - wage income, livestock and garden produce, and we surmise, income from self-employment, in fairly equal proportions. In this way they succeeded in generating annual incomes per household which were above those of small cultivators in the same receipt classes. In between these two extremes existed a heterogeneous group of landless wage earners who survived the best they could on various combinations of income from agricultural and non-agricultural occupations, livestock and garden produce, and self employment. Quite clearly, the wage-earner population of Western UP was itself differentiated in 1970/71

2.2 INCOMES - EASTERN REGION

Inevitably, the much smaller holding size and lower wage rates in Eastern UP had an impact on the level of incomes earned by poor households in the region.

Table 16
Income per household and percentage of households by receipt class, Eastern Region 1970/71

Annual Receipt Class	Total Receipts		% of households in each receipt class			
	small cultivators	wage earners	small cultivators		wage earners	
Rs.	Rs.	Rs.	%	cum %	%	cum %
Below 300	128	197	7.2		12.4	
300-599	467	480	14.6	27.3	26.9	39.3
600-999	785	783	37.1	64.4	27.4	66.7
1,000-1,999	1,301	1,287	30.8	95.2	27.9	94.6
2,000-2,999	2,403	2,185	4.0	99.2	3.0	97.6
3,000 & Above	3,758	4,156	0.6	98.8	2.5	100.1

Source: NSS 25th Round, No. 241 Tables 2.1.A, and 2.1.B.

Comparing the situation for small cultivator and wage-earner households the overall receipts for wage earners were about 10% less than for small cultivators. This was largely the result of the bias towards the lower receipt classes - nearly 40% of wage-earner households had incomes of less than Rs. 600 a year compared to 27% of small cultivator households. More than 50% of wage-earner households in the poorest group, and 60% in the second poorest group contained no adult male. Given the low agricultural wages of women wage earners and the lack of alternative employment opportunities, it was this which was overwhelmingly responsible for their extreme poverty. For non-agricultural occupations, the majority of female wage-earners in this region were either over 60 or under 14. Of particular relevance in this context is the over 60 age group - the majority of whom could be expected to be widows. In a recent study of 1971 Census data it was found that in India as a whole, the percentage of widows who were heads of households in the rural areas was as high as 26.5%. [*Agarwal, 1986: 185*] Between 20% and 25% of the two poorest groups of small cultivator households contained no adult male, with the same consequences for incomes.

If we compare the distribution above with that for the Western Region, then it becomes clear that absolute poverty was much deeper in the Eastern Region. With an average of Rs. 922 for all classes, compared to Rs. 1,316 in the Western Region, the receipts of small cultivator households in Eastern UP were 30% lower. The main reason for this was the bias towards very small holdings in the region already identified in Section 1. Consequently, a larger percentage of households in the Eastern Region fell in the bottom half of annual receipt classes, with more than 64% having annual incomes of less than Rs. 1,000 per annum, compared to 36% in the Western Region.

With such very low incomes, these small cultivators were most at risk of losing their land via the debt mechanism envisaged by Bhaduri. Indeed, it may well be that one of the reasons why their holdings were so small was because they were subject to such a process of land alienation. Unlike their cohorts in the West, well-paid agricultural wage employment was much less available. We have already seen both the extent of unemployment, and the low level of wages in the Eastern Region. As a result, the situation was even more marked for wage-earner households, with average income of Rs. 837 in Eastern UP, more than 45% below the Rs. 1,529 figure for the Western Region. Indeed, more than two-thirds of households in this sample received incomes of less than Rs. 1,000 per annum, compared to 29% in the West.

To make completely valid judgements on these comparisons we really need to know the number of persons in these households. However, such data is not provided by the NSS, although the number of earners is. With the exception of the Rs. 3,000 and above class which contains a larger number of earners for both small cultivator and wage earner households in the Western Region, there was very little difference between the figures for the two regions.

We have already mentioned the large percentage of households with a low paid female worker as sole breadwinner, and this is undoubtedly one important explanation for the bias towards low income among this sample in the Eastern Region. There is also the fact that wage-earners in general in the region were overwhelmingly dependent upon relatively low paid agricultural labour for their livelihood and were less likely to find work in more highly paid non-agricultural occupations than their cohorts in the West. As a result, the level of unemployment and underemployment among wage-earners in the Eastern Region was higher, with the inevitable consequences for income levels.

In the table below we present the breakdown of income by source for small cultivator and wage-earner households in the region.

Table 17
Contribution of Different Economic Activities to Total Receipts, Eastern Region, 1970/71

	Small Cultivators				Wage Earners					
Annual Receipt Class	Net Income from farm		Net Income from other sources		Wage Income		Livestock & Garden		Other Receipts	
Rs.	Rs.	%	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Below 300	45	35,2	83	55,0	103	52,6	27	23,5	47	24,0
300-599	162	34,7	305	65,3	361	75,3	28	13,9	52	10,9
600-999	215	27,4	570	72,6	501	64,0	48	14,3	170	21,8
1,000-1,999	364	28,0	938	72,0	917	71,2	209	16,2	160	4,9
3,000 & above	780	20,8	2,979	79,2	582	14,0	214	5,2	3,360	80,0
All Classes	4263	28,5	659	71,5	547	65,4	120	19,2	170	20,3

Source: *NSS 25th Round, No. 241, Tables 2.1.A and 2.1.B*

For small cultivator households the most immediate observation is the very low income that accrued from the farm - just Rs. 263 on average for all classes, representing only 28.5% of the total, compared to Rs. 612 in the Western Region where it represented 46.5% of the total. Overall, there was a much lower range of inequality of farm income in Eastern UP, reflecting the more homogeneous group of holdings included in the sample for this region. Undoubtedly, the most important reason for this was the bias towards very small holding size already identified. These figures amply illustrate why small cultivators in the Eastern Region were so dependent upon working on the farms of others. Unlike in the West, where farm income was the most important single factor determining the income class of small cultivator households, it was Income from Other Sources which largely determined the annual receipt class of their cohorts in the Eastern Region, where it amounted to Rs. 659 on average per household, representing 71.5% of total receipts. By contrast, in the Western Region, although the

absolute amount involved was not much different at Rs. 705, it represented a much lower percentage of the total - 53.5%.

Income from other sources included: net receipts from wage income, hire charges of draught animals, cart and agricultural implements, etc., remittances and other transfer receipts, and receipts from other non-gainful activities. Given the information we have already examined in previous sections, it is to be expected that the major contribution to this total came from the wages of agricultural work on the farms of others.

In the table below we present the number of earners per household for small cultivator and wage-earners in the Region.

Table 18
No. of Earners per Household, Eastern UP, 19709/71

Annual Receipt Class	Small Cultivators	Wage Earners
Below 300	1.57	1.03
300-599	1.31	1.04
600-999	1.56	1.59
1,000-1,999	2.18	1.97
2,000-2,999	2.43	2.77
3,000 & above	2.19	1.84

Source: *NSS 25th Round No. 237, Table 2.3.A*

Although the difference in the number of earners explains to some extent the difference in the net income from other sources between the classes of small cultivators, it is by no means a complete explanation - especially for the 7.2% of households in the poorest groups whose very low farm income was not compensated for by wage income, despite having as many earners as the 600-999 rupee class. Once again we can therefore identify unemployment as the major reason for low incomes among the poorest small cultivator classes.

Let us now turn our attention to the contribution of different economic activities to the incomes of wage-earner households. Despite a much lower absolute total for wage income in Eastern UP - an

average of Rs. 547 for all classes, compared to Rs. 815 in Western UP, this source of receipts was in fact proportionately much more important in the East - accounting for 65% of total income compared to 53% in the West. To a large extent the magnitude of wage income determined the receipt class into which a household fell. The one exception was the 2.5% of households with income above 3,000 rupees whose wage income only represented 14% of the total.

The twelve percent of wage earner households that received less than Rs. 300 per year found themselves in the poorest group because their income from wage employment is so much lower than that for any other group. They only received Rs. 103 per annum from this source compared to Rs. 361 for the Rs. 300-599 class, despite the fact that the number of earners was in the majority. Paradoxically, this was more marked in the 300-599 rupee group than in the under Rs. 300 group. It was therefore unemployment, of both men and women which was the main reason forcing the households into the very poorest group.

Table 19
Composition of Wage-earners between men and women (persons per household, Eastern Region, 1970-71)

Annual Receipt Class	Wage Earners	
Rs.	Male	Female
Below 300	0.48	0.50
300-599	0.37	0.65
600-999	0.69	0.69
1,000-1,999	1.14	0.53
2,000-2,999	2.00	0.77
3,000 & above	1.40	0.44

Source: NSS 25th Round, No. 237, Table 2.3.A. 1

Interestingly, for the remainder of the distribution there was a correlation between annual receipt class and the composition of the household earners between male and female. It is particularly

significant that the Rs. 2,000-2,999 class was the only one to contain two male workers per household, and that it also has by far the highest income from wages alone. Not only were females more likely to spend more of their time unemployed, and as we have already shown, to receive much lower wages than men in this region, but their employment opportunities were likely to be much more restricted to either low paid agricultural work or at best on the margins of the non-agricultural economy. By contrast, where more lucrative non-agricultural jobs existed, they were likely to be filled by men. [*Bardhan. 1985,: 2215*]

Inevitably the very poorest class must seek to diversify its means of livelihood and compensate for its low wage income. This it did by earning income from livestock and garden produce. This source of income was proportionately more important to the poorest households than to subsequent receipt classes. However, it was at the same time the lowest in absolute terms - contributing just Rs. 27 per annum, which is indicative of its very unfavourable asset position. On average, for all wage-earner households in the region just Rs. 120 per annum was accounted for by receipts from livestock and garden produce. This was lower than the Rs. 377 average in the Western Region. Whereas in the Western Region there was considerable variation in the amount each group could earn from this source - up to Rs. 1,466 per annum for the top income group - no income group in the East averaged more than Rs. 220 in receipts from livestock and garden produce. This raises the question of why this form of income generation was so poorly developed among wage-labourers in the region despite the very pressing need for alternative income? As we shall show in the next section, the poor asset position of wage-labourers in the region along with their heavy indebtedness militated against the relatively high

expenditures required for investment in livestock - such as dairying or poultry. It was also likely, that given their extreme poverty, any vegetables produced on garden plots were likely to be consumed by the family rather than sold on the market. There was also the point that agencies concerned with disseminating credit for such enterprises had concentrated their efforts more in the prosperous areas such as Western UP than in backward areas such as the East, and the further point that such credit frequently failed to reach those for whom it was intended, but was siphoned off by rich and powerful farmers. [*Dasgupta, 1977: 117*]

The item "Other Receipts" averaged just Rs. 170 per annum for wage earners in Eastern UP, compared to Rs. 337 in the West. As in the case of income from livestock and garden produce, opportunities for earning or receiving an income from these sources re much more limited in the Eastern Region. The one exception was the 2.5% of households in the Rs. 3,000 and and above class which owed more than 80% of its income to this source.

CONCLUSIONS

What overall conclusions can we draw concerning the level and distribution of income between that strata of small cultivators and wage earners who represent the poorest 10% of the rural population in the two regions? Firstly, it is quite clear that for both small cultivator and wage earner households the average level of incomes was lower in the Eastern Region than in the West. This was particularly marked for wage earners with a difference of 83% - comparing Western and Eastern UP.

The reason for this was the bias towards the bottom end of the distribution for both small cultivators and wage earners in the

Eastern Region. One might say that the "poor were poorer" there. Why should this be? With regard to small cultivators the explanation is firstly that small holdings were even smaller and less able to generate an income; opportunities for agricultural and non-agricultural employment were more limited so there was a high rate of under and unemployment; and wages were lower - particularly for women who comprised a larger proportion of the wage-earner population in Eastern UP than they did in the West. In addition, for wage earners, there were also far fewer opportunities for earning a living from alternative sources - such as livestock and garden produce in the Eastern Region as compared to the West.

There is also the interesting point that not only were the poor poorer in the East, but there was less inequality among them than was the case in the Western Region. We have attempted to stress throughout this chapter the greater heterogeneity of the poor in Western UP - whether they were small cultivators or wage-earners. In the East there was a much closer confluence between the small cultivator population and the wage-earner population - they were all fundamentally competing for work as low paid agricultural wage labourers.

However, there is one fact which stands out about the poor in Eastern UP that was by no means so marked as in the West, and that was the proportion of women, particularly sole-breadwinners in wage-earner households, that it contained.

All these factors had their roots in the different modes of productions and class structures in the two regions. The more capitalist agriculture of Western UP, with its higher productivity, progressive increases in the organic composition of capital, its more differentiated class structure and greater use of hired wage labour,

provided a different background against which to view the poor than the situation in the East. In the Western Region, the processes of agricultural growth threw up new mechanisms of poverty generation. The class structure has all the time been evolving, with rich and capitalist farmers progressively increasing their economic dominance in the countryside. Share-cropping, although widespread, was modified in the face of progressive agriculture, and became an important means by which these farmers secured supplies of labour via the interlinkage of land, labour and credit relationships. Although in some respect this represented an exploitative and repressive production relationship, it also provided the small cultivator with a dual source of income, both from cultivation of the share-cropped plot, and from wage labour on his landlord's farm. In the data we have surveyed there was considerable evidence that Bhaduri's theory whereby the landholding structure stabilises, with a class of small cultivators co-existing alongside a class of rich and capitalist farmers, was the case in Western UP. The higher wages generated in part as a result of the enhanced labour demands resulting from the introduction of the High Yielding Varieties Programme were significant in this process. Extreme poverty amongst the small-cultivator population of the region, was therefore largely confined to those unable to obtain sufficient off-farm employment to fill the gap between their subsistence needs and income generated on their holdings.

The class of landless wage-earners in the region was also in part the product of economic growth, and the progressive differentiation of the peasantry in the region. It was a heterogeneous mixture of dispossessed former small cultivators, previous village artisans, members of cultivating families who entered the wage-labour force out of choice, and women. As such there were very wide variations in the

levels of incomes among this group, with the poorest being found amongst those who spent the most time unemployed, and had the fewest alternative means of income.

In the Eastern Region, the backward nature of agriculture, with low productivity, and levels of investment, combined with predominantly semi-feudal production relationships contributed towards producing a massive class of impoverished small cultivators/agricultural labourers. In this respect there was much less differentiation than in the West. It is hypothesised that Bhaduri's mechanism of land alienation via the debt mechanism was partially responsible for producing this situation. At the same time the extreme population density and lack of non-agricultural employment produced an under and unemployment problem of enormous magnitude, and thus contributed to the depth and extent of poverty in the region.

PART III

ASSETS AND INDEBTEDNESS

The possession of assets is important in four basic respects. Firstly, productive assets such as land, machinery and equipment, and draught animals provide the necessary means of production whereby rural households are enabled to earn a living. Secondly, assets more widely defined to include wealth in the form of money and jewellry can be used to provide a cushion to cover temporary shortfalls in income flows. Thirdly, the possession of assets, particularly land, can be used as a means of raising credit for productive or consumption purposes. Fourthly, and most importantly from the point of view of poverty generation in both regions, the degree of asset ownership, particularly land, determines the extent to which a household is drawn into the cycle of indebtedness, which, on the basis of Bhaduri's model can lead ultimately to the expropriation of its land.

The magnitude and composition of a household's assets is thus an important factor determining its position in the class structure. This is particularly the case with regard to land - the most important single productive asset. Inevitably in dealing with the ten percent of poorest rural households we are dealing with households that were asset poor - particularly as we have already shown in respect of land. This manifested itself in a very low level of incomes for a significant proportion of the sample, particularly in Eastern UP. A major aim of this section, therefore, will be to examine the structure of asset holding within the context of these low incomes.

1. ASSET STRUCTURE - WESTERN UP

We shall look first at the situation in Western UP. In the table below we provide the asset distribution for small cultivator and wage earner households in the region. Assets included are: land, buildings, tools and implements, machinery, transport equipment, furniture and fittings and other fixed assets to be used for household enterprises. Financial assets include bonds, shares, etc. Any domestic durable of the household was excluded.

Table 20
Value of Assets - Small Cultivators and Wage Earners - Western UP, 1970-71

	Small Cultivators			Wage Earners		
Value of asset group	Assets Rs.	%	Cum.	Assets Rs.	%	Cum.
Below 100	40	0.4		15	1.8	
100-299	152	0.8	1.2	218	3.5	5.3
300-499	441	0.5	1.7	363	6.8	12.1
500-699	579	3.7	5.4	581	10.6	22.7
700-999	783	4.2	9.6	815	14.1	36.8
1,000-2,999	2,057	36.0	45.6	1,649	49.8	86.6
3,000-4,999	3,739	29.4	75.0	3,468	7.5	94.1
5,000-9,999	7,065	16.8	91.8	6,378	5.8	99.1
10,000 & above	13,721	8.4	100.2	10,075	0.21	100.1
All Classes	4,229			2,087		

Source: *NSS 25th Round, No. 241, Tables 2.4A and 2.4B*

Land is the single most valuable asset possessed by small cultivator households, and inevitably this boosted the figure for all classes to a value of Rs. 4,229 - more than double the average for landless wage-earner households with an average of Rs. 2,087 per household. Less than 10% of small cultivator households possessed assets of less than Rs. 1,000, whereas nearly 37% of wage-earners are in this position. At the top end of the distribution, nearly 55% of small cultivator households possessed assets valued above Rs. 3,000, and over 8% had assets valued at more than Rs. 10,000, compared to

just 13.5% and 0.2% respectively for wage-earners. By far the largest group of wage-earners, accounting for 50% of the total fell within the range Rs. 1,000-2,999. This was also the modal group for small cultivator households, accounting for 36% of the total.

Overall, the pattern of asset distribution reinforces our earlier conclusions concerning the structure of the small cultivator and wage-earner populations of the sample. There was obviously a very wide range of asset inequality within the small cultivator households, reflecting the landownership structure, but with by far the majority of cultivators possessing between Rs. 1,000 and Rs. 5,000 worth of assets. We can compare these figures with the value of assets for the rural population as a whole for 1971-72 as presented by the All India Rural Debt and Investment Survey. This firmly placed households with assets in that range as having ownership holdings which range between 0.10 and 1.00 acres, and reinforces the NSS 25th Round data, which as we showed in Section 1, placed the bulk of the sample in the 0.10 to 1.49 acre operational holding size range. When leased land is removed the size range becomes identical to that identified by AIRDIS. It seems reasonable to assume that it is from this group that were drawn those small cultivator households with annual receipts within the range Rs. 1,000 to R.s. 1,999 rupees, who formed nearly 50% of the sample.

The distribution of assets for wage-earners reflected the heterogeneity already identified for this population. At one end was a substantial minority of virtually assetless households, whereas at the other end was a group whose control over resources was relatively quite substantial - particularly in view of the fact that this was a landless population. By far the bulk of the sample, however, was to be found in the range Rs. 1,000 to Rs. 3,000 - where they comprised

nearly 50% of the total. As in the case of small cultivators, it seems reasonable to surmise that this was the same group who received income in the range Rs. 1,000 to Rs. 1,999 and who comprised 48% of the population. As we have already shown, however, this apparent homogeneity camouflages a fairly wide mix of wage-earners, who derived their incomes from a variety of sources in addition to agricultural labour.

The importance of identifying which land-holding and income group these small cultivators and wage-earners belonged to becomes significant when we look at credit and indebtedness in the next section.

2. CREDIT AND INDEBTEDNESS - WESTERN UP

The possession of wealth in the form of assets is important in determining the ability of a household to withstand fluctuations in income as well as unexpected expenditures, also in determining its access to credit.

In the table below we present the number and percentage of indebted small cultivator and wage-earner households classified by asset group, for the Western Region.

Table 21
Number and Percentage of Households Indebted by Value of Asset Group, Western Region 1970-71

Value of Asset Group	Small Cultivators		Wage Earners	
	No.	%	No.	%
Below 100	1	48.6	8	68.3
100-299	3	97.8	23	56.6
300-499	-	-	30	70.2
500-699	12	77.9	49	50.3
700-999	11	62.8	73	75.5
1,000-2,999	87	57.5	282	74.7
3,000-4,999	84	70.5	38	82.5
5,000-9,999	43	62.5	23	84.8
10,000 & above	16	41.4	2	100.0
All Classes	257	61.8	528	72.4

Source: *NSS 25th Round, No. 241, Table 2.8.A*

The first point that needs to be made concerning this data is that we have no way of knowing how accurate it is. Inevitably, because of the informal nature of many of the loans entered into by the poorest households, there is no way of checking the accuracy of the information given by respondents. There may, for instance, have been a reluctance on the part of debtors to admit to a loan, or they may have underestimated its size, out of fear that the act of recording the loan by the researcher may somehow reinforce the creditors rights. At best, therefore we can only regard this data as giving indications of trends, and should not read too much significance into the details.

According to the table above, nearly 62% of small cultivator households and 72% of wage-earner households were indebted. From table 20 we know that the modal asset group for both small cultivator households and wage earners was between Rs. 1,000 and Rs. 2,999. It is interesting that while only 57.5% of small cultivator households were indebted among this group, nearly three-quarters of wage-earner households were indebted.

In the table below we present the amount of loan taken and repaid during the year.

Table 22
Amount of Loan Taken and Loan Repaid During Year, Western Region1970-71

Value of Asset Group	Small Cultivators		Wage Earners	
	Taken	Repaid	Taken	Repaid
	Rs.	Rs.	Rs.	Rs.
Below 100	25	32	74	97
100-299	4	-	66	4
300-499	-	-	90	95
500-699	135	134	140	38
700-999	110	33	171	36
1,000-2,999	135	24	285	74
3,000-4,999	209	53	685	218
5,000-9,999	220	207	173	41
10,000 & above	206	81	250	150
All Classes	174	73	252	73

Source: *NSS 25th Round, No. 241, Tables 2.7.A and 2.7.B*

Overall, a larger loan was taken by wage-earner households than by small cultivators - Rs. 252 which represented a ratio of loan to assets of 1:8, compared to Rs. 174, representing a ratio of 1:24 for small cultivators. Although in each case Rs. 73 is repaid, this represented 42% of the total loan for small cultivators, but only 29% for wage-earners.

Not only were more wage earners indebted than small cultivator households, therefore, but they were deeper in debt in terms of both size of loan and in relation to their assets. (If we take the modal asset group of Rs. 1,000-2,999 and compare the amount of loan taken, then it worked out at Rs. 285 for wage-earners, representing a ratio of 1:5.8 loan to assets compared to Rs. 135, representing a ratio of 1:15.2 for small cultivators.) At the same time, wage earners in this group repaid 26% of the loan taken compared to 18% by small cultivators. It was earlier suggested that this modal group was

drawn from the annual receipt class between Rs. 1,000-1,999. The average receipts for the small cultivator and wage-earner populations contained within this group were almost identical, so that as a proportion of income, wage-earners were both borrowing and repaying a higher total. As in Section 2 of this chapter, this raises the whole question of the direction of causation. Were wage-earners more indebted than small cultivators in relative terms because they were so asset poor, or did they, as suggested by Bhaduri's theory, become asset poor because they were indebted to such an extent that they lost their land in the manner outlined in Section 2 of this chapter?

Inevitably, the fewer the assets a landless wage-earner possessed, the more likely was he to need to take a consumption loan to tide him over periods of unemployment. Wage-earners in every asset group, with the exception of the Rs. 5,000-9,999 group, took a larger loan during the course of the year than did small cultivators. In particular, the wage-earners in classes up to an asset level of Rs. 500 (who represent more than 12% of the total distribution) took loans which were equivalent to a very high percentages of their total assets. Indeed, in the case of the bottom group the amount of loan taken and repaid was several times in excess of the average assets of Rs. 15 per household!

What significance does this information have? Obviously not only were wage-earners more likely to be indebted, but they were more deeply in debt than small cultivator households. This is particularly the case, as we would expect, at the bottom end of the distribution, but is also a fact for the bulk of the wage-earner population, i.e. those who fell within the modal Rs. 1,000-2,999 asset group.

Unfortunately we do not know the provenance of these loans, nor

the extent to which they were used for consumption. It is possible that these were loans from employers and represented a form of managed indebtedness as identified by Sheila Bhalla for Haryana, where, in the most prosperous regions "consumption indebtedness is now closely tied in with labour agreements and direct consumption loans from persons other than the employer have been reduced to relative insignificance - especially among the permanent labourers. [*Bhalla, 1976: A2-A27*]

We have already shown how for the small cultivator population of the sample, leasing in of land, particularly on a crop-share basis, was practised quite widely. That this was a dimension of the interlinkage of land, labour and credit relations whereby employers secured supplies of labour in a tight labour situation is further reinforced by the prevalence of indebtedness among this sample of small cultivators in Western UP.

4. ASSET STRUCTURE - EASTERN UP

We already know that the small cultivators and wage-earners of this sample were worse off in terms of holding size, employment, wage levels and incomes in the Eastern Region, and it therefore comes as no surprise to find this situation duplicated for assets.

Table 23
Value of Assets - Small Cultivators and Wage Earners - Eastern UP, 1970-7

Value of asset group	Small Cultivators			Wage Earners		
	Assets	%	Cum %	Assets	%	Cum %
Below 100	20	0.6		15	5.1	
100-299	197	5.3	5.9	202	26.1	31.2
300-499	392	5.7	11.6	311	15.8	47.0
500-699	475	5.4	17.0	565	17.1	64.1
700-999	847	12.2	29.2	545	10.7	74.8
1,000-2,999	1,858	48.1	77.3	1,529	23.7	98.5
3,000-4,999	3,650	16.6	93.9	4,318	1.2	99.7
5,000-9,999	6,393	5.7	99.6	-	-	-
10,000 & above	11,139	0.5	100.1	11,120	0.3	100.0
All Classes	2,087			737		

Source: *NSS 25th Round, No.241, Tables 2.4A and 2.4B*

The first, and most obvious point to make is the very much lower level of assets possessed by landless wage-earners - an average value of Rs. 737, just 35% of the Rs. 2,087 worth of assets possessed by small cultivators in the Eastern Region. Indeed, so asset poor were the wage-earners of the region that 47% owned less than Rs. 500 worth of assets.

Comparing the asset position of small cultivators between the regions, we notice that 48% in Eastern UP owned assets valued between Rs. 1,000 and Rs. 2,999 which was the same modal group as their cohorts in the West, although the average value per household was about 10% lower in the East. Overall, the average value of assets per household in Eastern UP was less than half that in the West. Furthermore, there was a far larger percentage of households with assets valued below Rs. 1,000 - 29% in the case of the Eastern Region, compared to under 10% in the Western Region. Obviously, this structure of asset holding in the Eastern Region correlated closely with the structure of land ownership, and the bias towards very small plots of land already identified among this sample.

The wage-earner households in Eastern UP were by far the worse off in terms of their asset position than any other group in either region, with an average of Rs. 737 worth of assets per household compared to Rs. 1,680 for their cohorts in the West. As we have already mentioned, 47% possessed less than Rs. 500 worth of assets - which compared very unfavourably with the Western Region where only 11.6% of the distribution was in this position Furthermore, the value of assets for each group, with the exception of the Rs. 3,000-4,999 group, was lower in the Eastern Region than it is in the West.

4. CREDIT AND INDEBTEDNESS - EASTERN UP

In view of the lower level of assets, one would expect the poor of Eastern UP to have had at the same time both a greater need of credit than their cohorts in the West, and more difficulty in obtaining it. In the table below we present the percentage of households indebted by asset group.

Table 24
Percentage of Households Indebted by Value of Asset Group, Eastern UP 1970-71

Value of Asset Group	Small Cultivators		Wage Earners	
Rs.	No.	%	No.	%
Below 100	3	7.3	6	50.0
100-199	20	73.6	26	50.5
200-399	14	48.8	14	41.0
400-599	20	66.3	16	45.9
700-999	25	41.6	17	83.3
1,000-2,999	168	68.2	35	76.6
3,000-4,999	52	59.1	3	75.0
5,000-9,999	21	62.3	-	-
10,000 & above	1	26.3	1	100.0
All Classes	324	62.2	118	59.8

Source: *NSS 25th Round, No. 241, Table 28A*

For neither small cultivator nor wage-earner households was there any discernible pattern between value of asset group and percentage of

households indebted. For small cultivators, the numerically most important Rs. 1,000-2,999 asset group had 68.2%. of its members indebted, rather more than the 57.5% in the same group in the Western Region. Overall, the percentage of small cultivator households indebted in the two regions was practically identical at about 62%. However, a smaller overall percentage of wage-earner households were indebted in the East - 60% compared to 72% in Western UP. The significance of this will become clear when we look at expenditure in the next section.

In the table below we present the amount of loan taken and repaid during the year for small cultivator and wage earner households.

Table 25

Amount of Loan taken and Loan repaid during year, Eastern UP 1970-7

Value of asset group	Small Cultivators		Wage Earners	
	Taken	Repaid	Taken	Repaid
	Rs.	Rs.	Rs.	Rs.
Below 100	16	85	68	3
100-299	68	15	35	4
300-499	51	55	31	7
500-699	63	6	59	5
700-999	33	6	126	12
1,000-2,999	89	24	62	14
3,000-4,999	101	27	1,838	-
5,000-9,999	107	22	-	-
10,000 & above	189	189	-	-
All Classes	80	23	201	8

Source: *NSS No. 241, Tables 2.7A and 2.7B.*

Overall, small cultivator households took an average loan of Rs. 80 per household, representing a ratio of debt to assets of 1:26. This compares favourably with the situation of small cultivators in the West, who had a ratio of debt to assets of 1:24. The wage-earner population had an outstanding debt per household of Rs. 201 This represented a ratio of debt to assets of about 1:4, double that of

wage-earners in the West. The wage-earner population of Eastern UP was extremely vulnerable - for without assets their debts became unrepayable except from income - and as we know, the bulk of landless wage-earners in this region had incomes which were on average much lower than those for their cohorts in the West. Furthermore, if we look at loan repaid, then small cultivators had a better repayment rate - Rs. 23, representing 29% of loan outstanding, compared to Rs. 8, representing just 4% of the loan outstanding for wage-earners, further evidence of their extreme poverty.

As in the Western Region, the question has to be asked as to the direction of causation. Was the landless wage-earner population indebted because it had no land, or did it have no land because it lost it as a result of a mechanism of alienation which relied upon the debt mechanism as outlined by Bhaduri?

There is evidence to suggest that such a mechanism may well have been in operation in both regions of UP to account for some of the landless population. In a recent study of land transfers in Uttar Pradesh over the period 1952-1983, Kripa Shankar [*1988*] showed that in UP as a whole the landless accounted for 35% of land sold, whereas large landholders (above 10.0 acres) accounted for 45% of purchases. In the post-Green Revolution period - 1968-1983 - the repayment of old debts accounted for 75% of the land alienated by the landless. Among cultivators classified as marginal farmers 35% of the land sold was in order to pay debts. [*Shankar, 1988: 1517*]

CONCLUSIONS

The question is to what extent did this apply in each region? It has been our contention throughout, that Bhaduri's formulation of semi-feudal production relationships has most relevance to the

situation in Eastern UP. While the central position he gives to the operation of the debt mechanism and his stress upon exchange rather than production, has been criticised by some writers, the evidence presented in this section does point to widespread and deep indebtedness among the landless and small cultivator population of Eastern UP, with the distinct possibility that land was being alienated as a result of this mechanism.

However, it is of great interest that debt was also widespread among the poor households of Western UP. We have characterised this region as tending towards capitalism, but what type of capitalism, and to what extent were traditional production relationships based upon debt utilised in the process of capitalist development and differentiation in the countryside? According to theory, capitalist relations of production exhibit a process of expropriation of the agricultural surplus by the capitalist class via a system of unequal exchanges which rely upon there being a difference between the wage rate and the values created by the labour-force. However, this is very simplistic and assumes that a capitalist mode of production is fully developed, with the means of production (land in this instance) concentrated exclusively in the possession of the capitalist class. Quite clearly, as long as the poor peasantry retained some land, whether it be owned or rented, expropriation of their surplus could also operate via rent and usury. It is our belief that, as in Bhaduri's theory, the debt mechanism did in fact operate to differentiate the peasantry, and was part of the process whereby proletarianisation occurred, with a significant portion of land being sold by those who subsequently become landless, while simultaneously land was passing to large landholders. Kripa Shankar's data does in fact indicate that in the period 1978-79 to 1982-83, 35% of total land

in Western UP was accounted for by those who subsequently became landless, while 45% of the purchases were made by those with holdings above 10.0 acres. [*Shankar, 1988: 151*]

In the Eastern Region an even larger percentage of total land sold - 42% - was accounted for by those who sold their entire holding and subsequently became landless, but it is our contention that the latter was the direct result of the operation of semi-feudal production relationships, rather than of fundamentally capitalist relations militated via the debt process, as suggested was the case in the Western Region.

PART IV

CONSUMER EXPENDITURE AND CONSUMPTION

In this final section a detailed examination of consumer expenditure and consumption will be made, tying up the information presented with what is already known about these populations from the three earlier sections.

1. CONSUMER EXPENDITURE IN WESTERN UP

In the table below we present annual per household consumer expenditure for small cultivator and wage-earner households in the Western Region.

Table 26
Consumer Expenditure per Household and Percentage Distribution of Households by Annual Receipt Class - Small Cultivators & Wage-Earners, Western Region 1970-71

	Small Cultivators			Wage Earners		
Annual Receipt Class Rs.	% of h'holds	av. income	per h'hold consumer expend.	% of h'holds	av. income	per h'hold consumer expend.
Less than 300	3.1	209	1,123	2.8	142	528
300-599	12.5	461	1,129	6.5	510	633
600-999	21.8	842	1,211	22.4	838	866
1,000-1,999	48.5	1,399	1,759	48.0	1,396	1,174
2,000-2,999	10.4	2,472	2,102	12.7	2,472	2,519
3,000 & above	3.7	4,009	3,139	7.6	4,156	3,875
Classes		1,316	1,626		1,529	1,428

Source: NSS 25th Round, No. 241, Tables 2.2A and 2.2B.

There are several points to be made concerning the table above. Firstly, a comment already made in an earlier section - the bulk of cultivators and wage-earners fell within the receipt class Rs. 1,000-1,999. However, there were more small cultivator households with incomes below Rs. 1,000 per annum - 37.1% compared to 31.7% of wage-earners, and more wage-earner households in the two classes above Rs.

2,000 per annum - 20.3% compared to 14.1% for small cultivators. Despite this fact, the average per household consumer expenditure for all classes was in fact higher for small cultivators at Rs 1,626 per annum, than for wage-earners at Rs 1,428 per annum. The reason for this, which is apparent from the table, was quite simply that small cultivators in the three annual receipt classes up to Rs. 999 per annum (representing 37.1% of the distribution) were incurring expenditures considerably in excess of income. In particular, the very poorest group, (3.1% of the total) with average receipts of just Rs. 209 per annum, actually had expenditure which was five times greater than income at Rs.1,123 per annum. The Rs. 300-599 class (12.5% of the total) had expenditure nearly 2½ times income. The divergence between income and expenditure declined as receipts increased, but it was not until an income level of Rs. 2,000 per annum was reached that income exceeded expenditure, so that only 14.1% of the distribution was in this position. The deficit was not filled by recorded loans, for these have already been included in the figures for receipts.

For wage-earner households, with the exception of the poorest households who represented 2.2% of the total, and where expenditure exceeded income by 3½ times, the deficit between incomes and expenditures was not so marked. This is illustrated by the fact that whereas average income for small cultivators was Rs. 310 less than expenditure, the reverse was the case for wage-earners, with average incomes Rs. 101 in excess of expenditures.

What is the process by which a large proportion of the small cultivator population in the Western Region came to have quite substantial deficits, and how were these financed? A possible answer lies in the fact that not only were small cultivators likely to derive

their principal supplementary source of income from agricultural labour, but a quarter of the land they farmed for themselves was leased in. This leads to the question of the extent to which unrecorded consumption loans from landlord/employers were the source by which the deficits were filled? Such an arrangement could have considerable advantages for the employer - for by leasing out a small parcel of land and advancing a consumption loan he guaranteed that the recipient would work for him when required, and thus assured himself of a secure supply of labour at times of peak demand.

By contrast, the landless wage-earner population of the region was by no means as tied to the land for a livelihood. At the bottom end of the distribution the very poorest, with few employment opportunities except for casual agricultural labour, were unable to command the level of consumption loan that would raise their expenditure to the level of the poorest small cultivator households. By contrast, with their higher overall incomes from a variety of sources, wage-earners at the top end of the distribution did not need consumption loans. This is another illustration of the heterogeneity of the wage-earner population. The overall result was that there was a much wider degree of inequality in consumer expenditure for wage-earner households - from Rs. 528 for the poorest to Rs. 3,875 per annum for the better off, than was the case for small cultivators. The pre-existing inequality of incomes for the latter was ironed out via labour-tying consumption loans so that the range of consumer expenditure per household was much less - from Rs. 1,123 for the poorest to Rs. 1,139 for the better off of this sample of small cultivator households.

This raises some important points concerning the relations of production in the region. It is suggested that employers were

securing for themselves a supply of labour via a labour-tying mechanism which relied upon a combination of leasing small parcels of land and of giving consumption loans. This effectively tied the small-cultivator/agricultural labourer to the land, although it did have the advantage of securing for him a minimum level of living via consumption loans.

2. CONSUMER EXPENDITURE IN EASTERN UP

In the table below we present annual per household consumer expenditure for small cultivator and wage earner households in the Eastern Region.

Table 27
Consumer Expenditure per Household and Percentage Distribution ofHouseholds by Annual Receipt Class - Small Cultivators and Wage Earners

	Small Cultivators			Wage Earners		
Annual Receipt Class Rs.	% of h'holds	av. income	per h'hold consumer expend.	% of h'holds	av. income	per h'hold consumer expend.
Less than 300	7.0	282	796	12.1	197	439
300-599	19.2	467	844	29.2	480	535
600-999	37.9	785	1,185	29.5	783	1,114
1,000-1,999	31.3	1,301	1,472	25.2	1,287	1,465
2,000-2,999	4.1	2,403	1,916	2.6	2,185	2,241
3,000 & above	0.6	3,758	3,500	1.5	4,156	2,246
All Classes		922	1,231		837	997

Source: *NSS 25th Round, No. 241, Tables 2.2A and 2.2B*

Forty-one per cent of wage earners fell within the annual receipt classes below Rs. 599, whereas only 26% of small cultivator households had incomes below this level. The bulk of the households for both groups received between Rs. 600 and Rs. 1,999 per annum - with more than 69% of small cultivator households and 55% of wage-earners.

Average consumer expenditure exceeded income in both cases, and was higher for small cultivators at Rs. 1,231 per annum than for wage-

earners at Rs. 997. Taking small cultivator households first, the deficit was particularly marked for the poorest households (representing 7% of the distribution) with consumer expenditure nearly three times that of income. For the Rs. 300-599 class (14.6% of the total) it was nearly twice the level of income and for the Rs.600-999 class (37.1% of the total) it was about 50% greater. Interestingly, these deficits were less than those for their cohorts in Western UP, although of course, more households were involved - 64% of the total compared to 37.4% in the West. The combined result of lower incomes and lower deficits was that consumer expenditure among small cultivator households in the Eastern Region was on average for all holdings about a quarter below that in the Western Region.

What conclusions can we draw from this? Once again we shall make the assumption that the deficit was filled by consumption loans from the employer/landlord. But due to the pressure on land and the absence of alternative employment opportunities, the competition for work as agricultural labourers was greater, and the employer/landlord did not need to advance as large a loan as in the West. Furthermore, the motivation was different. In the West labour had more alternatives and wages were higher. As a result, employers engaged in labour-tying arrangements in order to assure themselves of adequate cheap labour when they required it. In the East we are looking at a situation where labour was abundant and wages low. Production relations were predominantly semi-feudal, and the employer/landlord used the land/labour/credit-tying nexus as a means of extracting the surplus from his tenant workforce and of perpetuating the existing production relations. In this situation he did not need to advance his labourers more than the absolute minimum for their survival.

Landless wage-earners in the Eastern Region had an even lower

average level of consumer expenditure per household than did small cultivators - just Rs. 997 - 19% below that of the latter. There were two reasons for this. Firstly, the larger percentage of the distribution concentrated in the lower receipt classes, and secondly, the smaller deficit between income and expenditure. This was particularly important for the two poorest classes. The less than Rs. 300 group (representing 12.4% of the distribution) had expenditure which was twice that of income, compared to three times for the same group of small cultivators, and the second poorest group (26.9% of the total) had expenditure which was just 11% higher than income compared to twice that for small cultivators. Access to consumption credit among the poorest of the landless wage-earners was therefore much more limited despite their obvious need.

Compared with wage-earner households in the Western Region who had an average consumer expenditure of Rs. 1,428 per household and who taken overall, consumed less than they received, the landless wage-earner households of Eastern UP were in a very parlous position with expenditure of just Rs. 997 per household, 30% lower. In the absence of alternative non-agricultural employment opportunities they were, as we have already seen, overwhelmingly dependent upon agricultural labour for a livelihood. Given the pressure of numbers on the available farm work, unemployment and under-employment was high.

Although the production relationships endured by small cultivator households in the region were oppressive in that land labour and credit relations were interlinked, they at least provided a basic "social security" in the sense that consumption loans, which although at usurious rates of interest, did fill the shortfall between income and expenditure - and at least made for a basic survival at subsistence.

The landless wage-earner at the bottom of the pile who could not even find adequate employment in agriculture, and for whom alternatives were non-existent, was hard put even to find consumption loans sufficient to fulfil his, and as we shall show, more usually her, subsistence needs.

Overall, poverty measured in terms of the number of households in specific expenditure groups and the levels of expenditure within those groups, was deeper in Eastern UP for both small cultivator households and for landless wage-earners, but particularly for the latter.

3. PER CAPITA CONSUMPTION

In this section we shall examine the distribution of the population of small cultivator and landless wage-earner households by monthly per capita consumer expenditure class, which will provide us with a quantitative way of measuring and comparing the depth of poverty in the two regions.

Any examination of per capita consumption expenditure is inevitably fraught with difficulties and pitfalls. To start with, there is the problem of the reliability of the NSS data itself. This has been highlighted in several papers of relevance to this study. Vaidyanathan [*1986: 133*] contends that consumption of foodgrains among wage-earners in particular, tended to be underestimated in the 25th Round of the National Sample Survey because of the convention of not including cooked food supplied to agricultural labourers while at work.

A particular problem when looking at regional disparities in consumption expenditure concerns the prices imputed to particular commodities. Consumers in Eastern UP were likely to confront a different and, as we shall show in Chapter 9, usually higher set of

prices for the basket of commodities that enter into their consumption than were consumers in the Western Region. A connected problem concerns quality variations in consumption between regions and households, which on the basis of this data we have no way of assessing.

Finally, there is the problem of how to include children in the per capita consumption statistics. We know from the figures that the NSS in this survey made no allowance for the fact that children consume less than adults so that the monthly per capita expenditure classes used depended upon the consumption of children being regarded as equal to that of adults.

In the table below we present the percentage and cumulative percentage of small cultivator and wage-earner households falling within specific monthly per capita expenditure classes for each region.

Table 28
Percentage of small cultivator and wage-earner households in each per capita expenditure class, Western and Eastern UP, 1970-71

Monthly per cap expend Rs.	Small Cultivators				Wage Earners			
	Western		Eastern		Western		Eastern	
	%	Cum	%	Cum	%	Cum	%	Cum
0-8	-		0.4		1.3		0.5	
8-11	0.2	0.2	2.3	2.7	1.7	3.0	2.5	3.0
11-13	2.1	3.3	3.6	6.3	5.3	8.3	5.5	8.5
13-15	2.1	4.4	6.1	12.4	5.5	13.8	4.5	13.0
5-18	4.7	9.1	11.0	23.4	10.4	24.2	8.0	21.0
18-21	13.3	21.4	14.1	37.5	11.0	35.2	14.4	35.4
21-24	11.8	33.2	12.8	50.3	10.6	45.8	12.4	47.8
24-28	14.2	47.4	11.3	61.6	13.3	59.1	12.9	60.7
28-34	17.3	64.7	16.8	78.4	11.1	70.2	16.4	77.1
34-43	12.3	77.0	12.6	91.0	15.2	85.4	11.4	88.5
43-55	13.3	90.3	5.3	96.3	6.0	91.4	5.0	93.5
55-75	6.4	96.4	2.9	98.9	4.4	95.8	5.0	97.5
75 & above	2.1	98.5	1.0	99.9	4.0	99.8	1.5	99.0

Source: *NSS 25th Round, No. 232, Tables 5.2.63 and 5.2.65*

For ease of exposition we have divided up the distribution at the Rs. 15, Rs. 24 and Rs. 43 points. All expenditure figures are in current 1970-71 prices. If we start by comparing the percentage of small cultivator households falling into each division in the two regions then it is apparent that the depth of poverty was much greater in Eastern UP where more than 12.4% of the sample had per capita expenditure of less than Rs. 15 per month, than in Western UP where only 4.4% had expenditure below this level. As we have already stated in the previous section, in the Western Region the larger deficits between income and expenditure were very important in raising many small cultivator households into higher expenditure groups.

There were more small cultivator households in every class up to Rs. 24 in Eastern UP, so much so that more than half the distribution had per capita expenditure within this range, compared to a third of the distribution in Western UP.

For wage-earner households the distribution for Western and Eastern UP was more similar, with 13.8% of households with per capita consumer expenditure of less than Rs. 15, compared to 13.0% in Eastern UP. Likewise, the situation was little changed up to Rs. 24, with 45.8% of the distribution below this level in Western UP, compared to 47.8% in Eastern UP.

Consequently, if we compare the small cultivator population with the landless wage-earner population within each region we find that in the Western Region there were far more wage-earner households in the low per capita expenditure classes than there were small cultivator households. As we showed earlier, this was the result of a combination of low incomes and poor access to consumption credit.

By contrast, in the Eastern Region there was a great deal of similarity between the distribution of small cultivator and wage-earner households by monthly per capita expenditure class, which is again indicative of the much greater homogeneity of the sample population in that region, with both groups overwhelmingly dependent upon agricultural labour occupations for the bulk of their livelihood.

In the table below we present the dependency ratio for small cultivator and landless wage-earner households in the two regions.

Table 29
Dependency Ratio of Small Cultivator and Wage-Earner Households by per capita monthly expenditure classs, Western and Eastern UP, 1970-71

Monthly per capita expenditure class	Small Cultivators		Wage Earners	
	Western	Eastern	Western	Eastern
0-8	-	2.6	1.63	3.0
8-11	1.3	1.6	1.15	2.58
11-13	1.24	1.37	0.96	0.85
13-15	1.13	1.18	1.25	1.35
15-18	1.13	1.06	1.14	0.98
18-21	1.03	0.93	0.92	0.63
21-24	0.86	0.90	0.92	0.44
24-28	0.96	0.77	0.41	0.48
28-34	0.61	0.69	0.47	0.37
34-43	0.79	0.39	0.60	0.15
43-55	0.50	0.25	0.53	0.20
55-75	0.39	0.41	0.19	0.47
75 & above	0.33	0.26	0.23	0.49
all classes	0.76	0.82	0.59	0.61

Calculated from *NSS 25th Round No. 232, Tables 3.2 and 4.2*.

It is clear from the table that for both small cultivator and wage-earner households in each region, the tendency was for a higher dependency ratio to be correlated with a lower per capita expenditure class. The interesting question is what is the extent to which a high dependency ratio was itself a cause of a low per capita expenditure? The first and obvious point is that children consume less than adults; as the NSS did not adjust for this fact there is likely to be a correlation between low per capita expenditure and the number of children in a household. However, on the basis of the information we have analysed in earlier sections, we would suggest that the data in Table 28 represents more than this factor alone.

It is interesting that although the number of adults did not alter much with increasing per capita income in both regions for small cultivator and wage-earner households alike, there tends to be a decline in the number of adult females. The "better off" households of the poor in both regions therefore were those which comprised a

single adult male, presumably a young man who had not yet married, and acquired dependents.

An important point, demonstrated by the dependency ratios is that there existed within the population of poor households in each region a dynamic which depended to some extent upon demographic factors. When the "better off" young single men married and had children their incomes have to be spread among more people, so that with increasing family size the per capita income of poor households declined. As children grew up and could contribute towards household income the family became "better off" again in per capita expenditure terms. Alternatively, if the male breadwinner died and the widow became the sole adult, the household was often plunged into the very poorest group.

An interesting point concerning the table is the fact that despite there being very little difference between the overall dependency ratios between small cultivator and wage-earner households in both regions, this is not the case if we take an average for the populations with monthly per capita expenditure below Rs. 15 per month. For small cultivator households the dependency ratio was 1.22 in the Western Region, but 1.68 in the Eastern Region, and for wage-earners the difference is even more marked, with a figure of 1.24 for the Western Region but 1.95 for the Eastern Region. The reason for this is amply illustrated in the table below.

Table 30
Adult Males, Females and Children per household for monthly per capita expenditure classes up to Rs. 15s, Western and Eastern UP, 1970-71

	Small Cultivators						Wage Earners					
	Western			Eastern			Western			Eastern		
Rs.	M.	F.	C.	M.	F.	C.	M.	F.	C.	M.	F.	C.
0-8	-	-	-	0,5	1,0o	4,0	1,93	0,94	4,71	-	1,0	3,0
8-11	3,0	3,0	4,0	1,0	1,33	3,74	1,63	1,09	3,11	0,64	1,08	4,44
11-13	1,092	1,77	4,58	0,86	1,27	2,93	1,52	1,60	2,98	0,93	1,15	1,76
13-15	1,24	1,24	2,81	1,12	1,49	3,08	1,40	1,31	3,38	1,51	1,93	4,66

Source: *NSS No. 232, Tables 3.2 and 4.2.*

The small cultivator households in Eastern UP contained fewer adult males than they did in the Western Region. In the Rs. 8-11 group only 50% of households contained an adult male. For wage-earner households this trend was even more marked, with no adult male in the expenditure class Rs.0-8, and with only 64% of households in the Rs. 8-11 group containing an adult male in the Eastern Region. This reinforces the information that we already have which points towards the very poorest and most disadvantaged rural households in the region being largely represented by those where a woman was the principal breadwinner.

In the table below we present data showing a comparison of per capita consumer expenditure for small cultivator and wage-earner households in the Western Region of UP.

Table 31
Per Capita Consumer Expenditure per month in total and on food: Small Cultivators and Wage Earners in Western UP, 1970-71

	Small Cultivators			Wage Earners		
Monthly per cap expend	per cap expend per mth	per cap expend on food	food expend as %	per cap expend per mth	per cap expend on food	food expend as %
Rs.	Rs.	Rs.		Rs.	Rs.	%
0-8	-	-	-	6.3	4.9	78.1
8-11	10.1	9.3	91.9	9.3	12.7	83.5
11-13	12.2	10.2	83.7	12.2	10.25	84.2
13-15	14.0	11.6	82.5	12.8	10.1	78.9
15-18	16.7	13.75	82.1	16.2	12.9	79.6
18-21	19.5	16.7	80.3	19.3	15.6	80.6
21-24	22.6	17.9	79.1	22.2	16.2	73.1
24-28	26.4	19.9	75.1	35.2	25.2	71.5
28-34	30.5	26.4	68.6	30.8	22.2	72.3
34-43	38.5	26.4	68.6	37.1	24.5	65.9
43-55	47.8	31.5	65.8	50.9	32.7	64.3
55-75	62.1	38.6	62.1	65.1	37.9	58.2
75 & above	100.22	59.4	59.3	125.7	63.8	49.8
All classes	29.6	21.3	72.0	31.2	18.3	69.5

Source: *NSS No. 232, Tables 5.2.63 and 5.2.65.*

Overall, per capita expenditure per month was slightly higher for wage-earners at Rs. 31.2 compared to small cultivators with Rs. 29.6. Also, the range of inequality was greater with the lowest per capita expenditure at Rs. 6.3 and the highest at Rs. 125.7, compared to a range between Rs. 10.1 and Rs. 100.2 for small cultivators.

The proportion of expenditure which was devoted to food tended to decline with higher total monthly per capita expenditure so that for small cultivators it represented nearly 92% of the expenditure of the Rs. 8-11 expenditure class, but only 59% of the Rs. 75 and above class. For wage-earners the proportion of consumption represented by food tended to be slightly less for most expenditure classes, and ranged from 84.2% of the total for the Rs. 11-13 expenditure group to just under 50% of the total for the Rs. 55-75 group.

In the table below we present the per capita consumer expenditure figures for the Eastern Region.

Table 32
Per Capita Consumer Expenditure for Small Cultivator and Wage-Earner Households in the Eastern Region of UPP, 1970-71

	Small Cultivators			Wage Earners		
Monthly per cap expend	per cap expend per mth	per cap expend on food	food expend as %	per cap expend per mth	per cap expend on food	food expend as %
Rs.	Rs.	Rs.		Rs.	Rs.	%
0-8	5.7	5.1	89.2	5.1	4.3	84.1
8-11	9.0	8.3	85.0	9.4	8.0	85.0
11-13	13.9	13.3	83.7	11.7	8.9	76.0
13-15	14.1	12.4	83.9	14.4	12.7	88.3
15-18	16.4	13.8	84.1	16.3	13.3	81.6
18-21	16.4	16.0	81.7	19.3	15.7	81.3
21-24	22.3	18.3	82.0	22.5	18.4	81.8
24-28	25.7	20.9	81.5	25.5	18.7	77.7
28-34	30.3	24.6	81.4	30.6	23.25	75.9
34-43	37.7	30.2	79.9	37.2	27.8	74.8
43-55	48.4	33.4	69.0	47.9	36.8	77.5
55-75	57.7	40.8	70.7	59.1	28.5	48.2
75 & above	81.0	48.6	60.0	81.9	49.4	60.3
all classes	24.1	19.4	80.2	25.3	18.8	74.3

Source: *NSS No.232, Nos. 5.2.63 and 5.2.65.*

In the Eastern Region per capita expenditure was on average about 19% lower than in the West. For small cultivators it averaged Rs. 24.1 per month compared to Rs. 29.6 per month in the Western Region, and for wage-earner households it averaged Rs. 25.3 compared to Rs. 31.2 in the Western Region.

There were two reasons for this. Firstly, per capita consumption expenditure for the "better off" households tended to be higher for both small cultivator and wage-earner households in the Western Region, and secondly, the very poorest in Eastern UP were slightly worse off then their cohorts in the West. There is also the point, which will be considered in detail in Chapter 9, that consumers in Eastern UP faced a higher set of prices for their basket of commodities than was the case in the West, so they were consuming less in real terms.

What does all this mean in terms of relative poverty between the two regions? In Chapter 1 we discussed in detail the problems involved in the measurement of poverty, and finally settled upon the level of Rs. 15 per capita per month in 1960-61 prices as the "poverty line". In many respects this was an arbitrary cut-off point in the sense that poverty is as much a question of degree as of absolutes. However, this figure has been very widely quoted in the literature, and does provide some sort of bench-mark against which to compare the consumption levels of the population in this sample.

Accordingly, we have deflated the 1970-71 per capita expenditure figures by a consumer price index for Agricultural Labourers in UP to produce consumption levels in 1960-61 prices.

Table 33

Value of Per Capita Consumption deflated to 1960-61 prices, Western and Eastern UP, 1970-71

Monthly per capita expend class	Small Cultivators				Wage Earners			
	Western UP		Eastern UP		Western UP		Eastern UP	
	Rs.	Cum %	Rs.	Cum %	Rs.	Cum %	Rs.	Cum %
0-8	-		3.0		3.4		2.7	
8-11	5.4	0.2	4.8	2.7	5.0	3.0	5.0	3.0
11-13	6.5	3.3	7.4	6.3	6.5	8.3	6.2	8.5
13-15	7.5	4.4	7.5	12.4	6.8	13.8	7.7	4.5
15-18	8.9	9.1	8.8	23.4	8.7	24.2	8.7	21.0
18-21	10.4	21.4	8.8	37.5	10.3	35.2	10.3	35.4
21-24	12.1	33.2	11.9	50.3	11.9	45.8	12.0	47.8
24-28	14.1	47.4	13.7	13.3	13.5	59.1	13.6	60.7
28-34	16.3	64.7	16.2	78.4	16.5	70.2	16.3	77.1
34-43	20.6	77.0	20.1	91.0	19.8	85.4	19.9	88.5
43-55	15.5	90.3	25.9	96.3	27.2	91.4	25.6	93.5
55-75	33.2	96.4	30.8	98.9	34.8	95.8	31.6	97.5
75 & above	53.4	98.5	43.3	99.9	67.1	99.8	43.7	99.0
All classes	15.8		12.9		16.7		13.5	

Source: *NSS No. 232, Table 5.2.63.*

Taking the figures for all classes first, then small cultivators and wage-earners in the Western Region in the lowest 10% of households

were subsisting at an average which was marginally above the 1960-61 poverty line at Rs. 15.8 and Rs. 16.7 per capita respectively. In Eastern UP the average figures were just below the "poverty line" at Rs. 12.9 for small cultivators and Rs. 13.5 for wage-earners.

The Indian Government itself placed the poverty line at Rs. 20 per capita per month in 1960-61 prices, which means that all households up to and including those in the Rs. 34-43 group (1970-71 prices) would be regarded as subsisting in poverty. As we see from the table above, this amounted to 77% of the sample of small cultivators in Western UP and 91% in Eastern UP. For wage-earner households 85.4% in Western UP and 88.5% in Eastern UP would be considered as living in poverty on the basis of this criterion.

CONCLUSIONS

Poverty has many dimensions, as has become apparent in the course of this work. Limited access to land, employment, incomes, assets, credit and expenditure are all, in different degrees, dimensions of the same problem. In examining each of these aspects in turn we have attempted not only to gauge the depth of the problem, but also to uncover something of the mechanism by which poverty itself is generated in each region, and why poor people stay poor.

In the Western Region the poor small cultivator households did not operate such tiny holdings as did their cohorts in the East, where many holdings were not large enough to generate sufficient income for subsistence. At the same time landless households in Western UP had wider employment opportunities in both the agricultural and non-agricultural sectors, whereas in the Eastern Region with its poorly developed industrial and agricultural bases, such opportunities were much more limited. As a result there was very great competition

among both small cultivators and the landless in Eastern UP for work in agriculture. This inevitably resulted in high levels of unemployment and underemployment in the region, and wages which were considerably lower than those in the West.

This all took place within a set of production relationships which differed between the regions. In the West, as we have shown in earlier Chapters, a relatively high level of agricultural investment, particularly in irrigation, and the use of the biological innovations of the Green Revolution, resulted in a prosperous agricultural environment for those with holdings large enough to benefit. At the same time it encouraged the resumption of leased-in land and the buying up of small holdings. Many holdings in the large and mid-sized groups were now being worked with a combination of family and hired labour which became increasingly biased towards the latter. This is necessary in order to overcome production bottlenecks and take full advantage of the Green Revolution technology which necessitates a more disciplined and timely labour effort than traditional agriculture if it is to meet its full potential.

As a result the demand for hired labour increased, particularly at the time of key agricultural operations such as sowing and harvesting. This led employers to find ways of ensuring their labour supplies during these crucial periods. They did this via a system of labour tying, which often involved the interlinkage of land, labour and credit relations. However, far from being semi-feudal, this derived from the need for hired labour of the emergent capitalist class and at the same time limited the ability of the growing class of landless wage-earners to organize themselves effectively in the face of rising demand.

By contrast, in the Eastern Region, not only was agriculture relatively backward, investment low, and labour over-abundant, but production relations were much closer to a semi-feudal model. This again implied an interlinkage of land, labour and credit relations, but for quite different reasons than in the West. In Eastern UP such interlinkages were the means by which the employer/landlord class siphoned off the agricultural surplus. As we have seen in previous chapters, the extent to which this was reinvested back into agriculture was limited in the region. At the same time, extreme competition for land and work, on even the most onerous terms, rendered the vast class of petty-landholders cum agricultural labourers largely submissive and incapable of concerted action.

The results for the poor of each region differed somewhat. To start with, it is apparent that in the Western Region neither the small cultivator population nor the wage-earner population of this sample was as poor as its cohort in the Eastern Region. Whether we look at incomes, assets, household expenditure, or per capita consumption levels, the depth of poverty was greater in the East in the early 1970s..

It is also clear that the poor was a much more homogeneous group in the Eastern Region with an overall lower level of living and less inequality among them than in the West. Both small cultivators and wage-earners in the region were overwhelmingly dependent upon agricultural labour for a livelihood in the region. By contrast, in the West, small cultivators were able to obtain a larger percentage of their income from their holdings, and were therefore not as dependent on agricultural labour to supplement this income. At the same time, the wage-earner population of the Western Region was composed of a much more diversified group of households than in the Eastern Region,

and contained within it a large group whose link with agriculture was tenuous. Inequalities among the wage-earner population of the Western Region were wider than for any other group.

A point that emerged during the course of the work was the greater prevalence of women in the rural workforce in Eastern UP than in the West, particularly among the wage-earner population. As the chapter progressed it became apparent that within the Eastern Region women were over-represented among the very poorest households, particularly women of households in which there was no male breadwinner. They received the lowest wages, were the most likely to be unemployed, and had the lowest income, expenditure and consumption levels.

In summing up, therefore, one can conclude that not only were "the poor poorer" in Eastern UP in the early 1970s, but given the backward condition of agriculture in that region and the prevailing semi-feudal production relations, they were more likely to remain poor.

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CHAPTER 9

THE POVERTY LINE

1. THE MEASUREMENT OF CONSUMPTION

So far this work has been concerned with building up a picture of how poverty and inequality were generated in Western and Eastern UP in the early 1970s. The analytical structure used has depended principally upon using a mode of production approach, so that previous chapters have been directed not only at assessing the extent of inequalities in such important variables as land, capital, wealth and incomes, but have at the same time attempted to do this within a theoretical framework of analysis which posits both a different level of development of the forces of production in the two regions, and also a different set of production relationships. As a result, poverty in the two regions was generated via somewhat different processes, although the results for the households involved were the same.

While the plight of marginal farmers and agricultural labourers was dealt with in detail in Chapter 8, the actual measurement of the extent of poverty in the two regions still needs to be dealt with, and this is the subject of this penultimate chapter. It will examine the situation for the entire agricultural populations of Western and Eastern UP, making a detailed assessment of consumption expenditure on food and other items. This will also include a detailed breakdown of food consumption by weight and calorific content. We shall therefore be able to assess not only the percentage of the population of each region which fell below the conventional poverty line of Rs. 15.0 per capita per month in 1960-61 prices, but also the extent to which these populations were malnourished.

1.1 CONSUMPTION OF BASIC FOODSTUFFS BY WEIGHT

A detailed survey of household consumption was conducted by the Economics and Statistics Division of the Perspective Planning Division of the State Planning Institute for Uttar Pradesh for the year 1969-70. [*Household Consumption and Demand Analysis* referred to hereafter as *HCDA*.] Multi-stage stratified random sampling was adopted to cover 24,660 households in rural areas. Basic data on quantities and values of commodities consumed were collected at the household level, as well as percentages of home-grown consumption to total consumption for various commodities. The rural households were grouped into seven categories of agriculturists on the basis of size of holding, and one group of non-agriculturists. We used this raw data to calculate quantities and values of commodities consumed by each group, along with the set of prices faced. In addition, the nutritional adequacy of the diets implied and the extent to which consumption needs could be met from home grown commodities was examined.

Table 1
Per Capita per Day Basic Food Consumption (Quantity kg.), 1969-70

Size Class	Western Region	Eastern Region
acres	kg.	kg.
Below 1.0	1.00772	0.76135
1-2.25	1.01111	0.80535
2.25-6.25	1.06748	0.81824
6.25-15.0	1.13586	0.87669
15.0-30.0	1.28024	0.91064
30.0 acres & above	1.20464	0.87831
non-agriculturists	1.21485	0.69223

Source: Calculated from raw data from *HCDA for UP*

The table above gives the total quantity of basic foodstuffs. (See footnote (1) for composition and Appendix 1 for calculations). The most noticeable point is that the total quantity of food consumed (kg) was higher in the Western Region than in the Eastern Region for

every size class. The below 1 acre size class, as expected, had the lowest per capita consumption for each region. However, the consumption in the Western Region was 32% above that for the Eastern Region for this size class. Even more striking was the fact that the per capita kg. per day consumption of this smallest size class was not even achieved by the above 30 acre size class in the Eastern Region.

Table 2 below provides the composition of consumption of different foodstuffs - divided into foodgrains, pulses and other foods for different size classes in the two regions.

Table 2
Composition of Food Consumption, 1969-70

	Foodgrains		Pulses		Other Foods*	
Size Class acres	West	East	West	East	West	East
	kg.	kg.	kg.	kg.	kg.	kg.
Less than 1.0	0.77420	0.53764	0.04531	0.09304	0.18821	0.13067
1-2.25	0.74989	0.58430	0.05191	0.07715	0.20931	0.14390
2.25-6.25	0.78748	0.57182	0.04733	0.08876	0.23267	0.15766
6.25-15.0	0.81330	0.60521	0.04797	0.09239	0.27459	0.17909
15.0-30.0	0.90427	0.61491	0.04991	0.09702	0.32606	0.19871
30.0 & Above	0.82415	0.56581	0.05397	0.08331	0.32652	0.22919
non-agriculturists	0.96369	0.49199	0.05411	0.06587	0.19705	0.14537
all households	0.83099	0.63766	0.05007	0.08378	0.25763	0.16922

*Vegetables, Milk, Ghee, Khandsari

Source: Calculated from raw data from *HCDA for UP*

The quantity of foodgrains consumed, the staple diet of both regions, was consistently higher for the Western Region for every size class. The average for all households was 30% above that for the Eastern Region. By contrast the quantity of pulses, a foodstuff high in protein, and important in the cropping pattern of the Eastern Region at this date, was 67% higher for all households in the Eastern Region than in the West. This was compensated for by the appreciably larger quantities of "other foods" (which included milk, a high protein food) consumed by every size class in the Western Region.

The difference for all households between the two regions amounted to more than 52%. More food in total in terms of weight was consumed in the Western Region by every size class compared to its cohort in the East. This was mainly accounted for by the much larger quantity of foodgrains consumed in the West.

In many respects this pattern of overall consumption is not at all surprising in view of the much more productive agriculture of the Western Region, and in particular, the importance of wheat in the cropping pattern. The important point to be made here is that the higher overall outputs and productivity of the region were clearly translated into higher levels of consumption across the board by the population of the Western Region when compared to the population of the East. This fits well with the findings of Chapters 6 and 7 on farm production in the two regions.

But of even more interest is the pattern of consumption between the size classes in the two regions. Taking foodgrains first, and excluding non-agriculturists - consumption was higher for the two largest size classes, and lowest for the two smallest in both regions. It ranged from a low of 0.74989 kg. per capita for the 1-2.25 acre size class in the Western Region to 0.90537 kg. for households in the 15-30 acre size class, a difference of 0.15548 kg. or 20%. This was a much greater degree of inequality than in the Eastern Region where it ranged from a low of 0.53764 kg. per capita for the under 1 acre size class to a high of 0.61491 kg. per capita in the 15-30 acre size class, a difference of just 0.07751 kg. or 12.6%. Likewise, 'Other Foods' were consumed in greatest quantity by the two largest size classes in the Western Region, and in the least quantity by the two smallest size classes with the less than one acre size class consuming just 0.18821 kg. of other foods per capita per day compared to 0.32652

kg. for the above 30 acre size class - a difference of more than 73%.

A similar pattern occurred in the Eastern Region where cultivators with holdings above 30 acres consumed 0.22919 kg. of other foods per capita per day compared to just 0.13067 kg. by the under 1 acre size class - a difference of more than 75%. For consumption of pulses, there was by no means the same degree of inequality in either region, neither was there a direct relationship between size of holding and quantity consumed. Indeed, in the Eastern Region the under one acre size class consumed the second highest quantity at 0.09304 kg. per capita per day. A possible reason for this was that pulses were much more likely to be grown on the cultivator's own plot for home consumption, rather than purchased on the market, whereas foodgrains and other foods, particularly milk and khandsari, were more likley to be purchased on the market by those with the smallest plots. Their lack of overall purchasing power as well as their small size of holding, combined with the nature of the production relationships which meant that family consumption was squeezed in order to pay rent and interest on debt are the most likely explanation for the comparatively low consumption of these foodstuffs by small cultivators in both regions, and particularly so for the under 1 acre group.

The difference in the weight of food consumed by non-agriculturists in the two regions is most striking. Looking back at Table 1, whereas they consumed the smallest quantitity of basic foodstuffs in Eastern UP with only 0.69223 kg. per capita per day, they consumed the second largest quantity at 1.21485 kg. per capita per day in Western UP. In Eastern UP they were therefore the most impoverished group in the region, whereas in Western UP they were comparatively the best fed. This fits in well with the findings of Chapter 8, which showed that while there was a group of wage-earners

in Western UP who enjoyed high levels of employment and incomes, there were some very poor wage-earners indeed in the Eastern Region. The latter's low purchasing power was clearly reflected here in their low level of food intake.

1.2: CALORIFIC AND PROTEIN CONTENTS OF BASIC FOODSTUFFS

So great was the variation in the weight of food consumed in the two regions that according to this data the below one acre size class in Western UP actually consumed a larger quantity of food per capita in terms of weight than did the largest size-holding class in Eastern UP. This is despite the fact that wheat the main staple of the Western Region and rice the main staple of the East are almost idential in terms of calorific content gram for gram. [*Akroyd, et al, 1966*] In view of this, perhaps we should not take the figures presented by this data too literally, as we do not know what type of biases may have entered into the collection of the raw data in the two regions at the sampling stage. As always, it is the trends which are important, and even if the actual figures presented in the raw data are not totally reliable, the implication of the trend is clear, namely the population of the Western Region was better nourished than the population of the Eastern Region at this date..

To make meaningful comparisons of consumption in the two regions it is necessary to take account of the nutritional content of the food consumed. In the table below these weights have been converted into calorific and protein equivalents using the the Indian Council for Medical Research 1968 table of food values. [*Sukhatme, 1970: 477*] (See Appendix 2)

Table 3
Per Capita Per Day Total Intake of Calories (All Foods), 1969-70,

Size Class	Western Region	Eastern Region
acres	calories	calories
Below 1.0	3,004	2,273
1-2.25	2,966	2,403
2.25-6.25	3,123	2,414
6.25-15.0	3,260	2,566
15.0-30.0	3,627	2,648
Above 30.0	3,383	2,477
Non-agriculturists	3,844	2,056

Source: Calculated from raw data from *HCDA for UP*

Nutritionists have done a great deal of work trying to assess the minimum requirement of an average Indian male with regard to calories. It is a highly technical subject and not without its own controversies, some of which have already been dealt with in Chapter 1. P.V. Sukhatme a much respected worker in this field, used ICMR protein and calorie scales (as we have done in the table above) in his work on the extent of calorie and protein requirements in India. Bearing in mind that body-weight, climate, state of health, age, pregnancy and level of physical activity all have an impact on the calorie and protein requirement of a person it is not easy to arrive at a simple average "minimum calorie and protein requirement" applicable in all circumstances. Sukhatme's solution was to take the FAO/WHO recommendations for an average Indian male in moderate activity. [*Sukhatme, 1970: 478*] The estimated nutrition requirement of this "reference man" was 2,800 k.cal plus 30 grams of reference protein per day. From this he calculated the minimum physiological levels for calorie and protein requirements at 2,200 k.cal and 27 grams of reference protein per day, below which an individual can be regarded as being undernourished. [*Sukhatme, 1965: 19*] This is a figure which has been widely quoted in the literature on poverty.

Patwardhan [*1960*] used an estimate of 2,100 k.cal and Dandekar and Rath [*1971*] 2,250 k.cal per day.

It is quite clear from the table that whichever criteria is selected no group of households in the Western Region was deficient in calories. The range was between 2,966 k.cal per capita per day for the 1-2.25 acre size class to 3,844 for the non-agriculturists, with all other classes consuming in excess of 3,000 calories per day. In reality it does not seem believable that no group in Western UP was deficient in calories, so the raw data must be in question, but the trend is clear. The situation was in stark contrast with that for the Eastern Region where no group of households had a calorie intake which reached the 2,800 requirement of the "reference man". Only non-agriculturists actually fall below the recommended minimum of 2,250 k.cal per day, and were quite clearly malnourished with a figure of just 2,056. Households with no land or operating up to one acre, who comprised 38% of the total rural population of the region in 1970-71 were subsisting right on the borderline of adequacy at just 2,273 k.cal per capita per day.

We have used the ICMR tables also to calculate the protein content of the diets and have converted protein to reference protein at the rate of 50% for vegetable protein and at 80% for animal protein (milk). [*Sukhatme, 1970, 478*] For the less than one acre size group this gives 42.7 grams of reference protein in the Eastern Region and 67.7 grams of reference protein in the Western Region. This is well above the recommended level of 30 grams and the physiological level of 27 grams, so was clearly not a problem among agriculturists in either region. Even the non-agriculturists of Eastern UP with their calorie deficient diets consumed 40 grams of reference protein a day.

Unfortunately, sufficiency or over sufficiency of protein does

not compensate for lack of calories. [*Sukhatme, 1970, 176-183*] In order to be metabolized by the body, protein requires to be accompanied by a minimum intake of calories. If it is not accompanied by the requisite amount of calories then the protein cannot be utilised, so that a diet which is sufficient in protein but deficient in calories can lead to a protein deficiency as well. [*Sukhatme, 1970: 483*]

Diets very near the minimum physiological limits give very little leeway for the effect on diet of any one of the many possible environmental influences. Any depression of food intake occasioned by an infection, or by a social or economic factor would result in total intake falling below the critical limit and thus in undernourishment. In adults this would result in lethargy and reduced resistance to infection, while in children it can lead to serious emaciating diseases such as kwashiorkor and marasmus. [*Sukhatme, 1970, 477*]

Of course, any diet to be adequate must contain the requisite amounts of vitamins and minerals. Modern nutritionalists consider that peasant diets consisting of staples of rice or wheat along with a small amount of pulses and vegetables to be nutritionally adequate. [*Sukhatme, 1972: 480*] Complex supplements of Western-type foods do not have to be made. Undernourishment can be overcome simply by consumption of more of the same.

Table 4
Simple Averages of Home-Grown Consumption - Selected Foods, 1969-70

Size Class	Wheat		Paddy		Other Cereals		Pulses		Other Foods		Fuel		All Food & Fuel	
acres	West	East	West	East	West	East	West	East	West	East	West	East	West	East
Below 1.00	36.4	60.2	36.3	49.6	40.8	45.5	23.7	43.0	29.5	51.4	80.4	84.4	41.2	55.7
1-2.25.0	70.9	77.9	73.8	76.3	79.7	71.2	59.0	71.7	49.1	57.2	90.6	88.5	70.5	73.9
2.25-6.25	83.4	82.0	77.9	85.1	81.2	83.1	63.6	82.6	49.6	60.6	92.3	93.0	74.7	81.1
6.25-15.0	83.8	88.1	80.4	78.2	89.7	90.4	67.9	91.4	62.1	58.0	74.2	92.8	76.3	83.1
15.0-30.0	91.0	85.7	90.0	86.9	94.1	83.0	73.2	77.8	58.7	64.6	89.8	90.4	80.9	83.2
More than 30.0	98.1	90.0	90.8	97.2	57.8	95.7	74.0	91.4	69.4	63.6	96.4	91.7	81.1	88.3
All sizes	55.9	63.4	55.3	61.8	57.8	62.7	43.4	63.0	47.3	53.3	82.7	86.3	57.1	65.1
Non-agrics.	17.1	30.0	12.4	19.3	14.5	34.4	9.5	36.9	32.7	33.3	76.0	78.2	27.0	38.7

Source: Calculated from raw data from *HCDA for UP*

2. HOME GROWN CONSUMPTION

Table 4 gives the percentages of the most important foodstuffs which were grown at home by cultivators and non-agriculturists in the two regions. Some telling observations emerge from this table, particularly in view of the set of production relationships envisaged in the two regions. It is significant that for all food and fuel the proportion of consumed commodities that was grown at home was lower for every size class in the Western Region than in the East. By far the biggest differential occurred for the under one acre size class who, in the Western Region, only provided 41.2% of their consumption from their own home-grown sources compared to 55.7% in the Eastern Region. This ties in very well with the greater degree of market involvement of small cultivators and agricultural labourers in the Western Region. If they were not consuming home-grown commodities, then they must have had to purchase them on the market. This raises many questions, including whether they simply could not grow sufficient to feed themselves from their holdings, whether they were forced to purchase on the market because have had to sell their home-grown commodities in order to meet debt commitments, or whether this group contained a large proportion of essentially agricultural labourers. It also raises the question of the prices faced by this group.

In the Eastern Region, the under one acre size class had to purchase a smaller proportion of its consumption on the market, but it was still nearly 45% of the total, and therefore very considerable. Certainly, it was a far larger proportion than for any other size class. Again, the same considerations as those cited above for the Western Region apply, but with the added factor that we are dealing here with a predominantly semi-feudal mode of production. This

raises the whole question, following on from Bhaduri's formulation, of the extent to which these small cultivators cum agricultural labourers were forced to purchase food and fuel on the market as a result of having to pay part of their produce to the landlord-usurer as interest on debt.

Taking each commodity separately, it is to be noted that in the Western Region, where wheat was the principal crop, small cultivators only produced at home 36.4% of what they consumed. This is of great interest when it is observed that in the Eastern Region, where wheat was far less important in the cropping pattern, cultivators with less than one acre provided more than 60% of their consumption from their home-grown sources. There are two possibilities here. Firstly, that this group comprised a large proportion of predominantly agricultural labourers who retained small plots of land. We know from Chapter 4 that there was far greater absolute landlessness in the West - the National Sample Survey for 1970-71 estimated that 31.5% of agricultural households were landless in Western UP, compared to just 13.8% in the East. We also know that the Economics and Statistics Department of UP, who collected this consumption data, included agricultural labourers in the under one acre category, but we have unfortunately no idea what proportion of their sample was absolutely landless. In both regions the less than one acre group was consistently set apart from the rest of the distribution, but to a far greater extent in the Western Region than in the East. This does suggest that the Western sample contained a far larger proportion of agricultural labourers than in the East.

The second possibility is that in line with the analysis of Chapter 8, that these very small cultivators, with inadequate means of production, were forced into a set of production relationships in

which rent, debt and interest payments meant that they were in fact unable to retain for their own consumption all of their production, and were therefore forced to purchase a large proportion of what they needed, at high implicit interest rates. The low level of home-grown consumption by the under one acre group in the Western Region was duplicated for each commodity.

Above 15 acres the proportion of wheat consumed that was home-grown was higher in the Western Region than in the East, which is not surprising in view of the importance of wheat in the cropping pattern of these cultivators. It is nevertheless worthy of note because, with the exception of Other Foods and Fuel for the largest size class, it was the only instance where a commodity which entered into consumption was provided in greater proportion from home-grown sources in the Western Region than in the East. In all other instances the proportion of consumption provided from home-grown sources was higher for every size class in the Eastern Region. This is clearly indicative of the greater market involvement of the cultivators in the Western Region and reflects the more capitalist mode of production of the region.

As one would expect, among agriculturists in the two regions the proportions of home-grown consumption followed the composition of consumption, indicating that where possible households met their consumption needs from home-grown commodities. The overall higher proportions of home-grown commodities in the Eastern region is not surprising in view of the much more subsistence-oriented economy in that region with less involvement with the market than in the Western Region and less stress on cash crops.

3. VALUE OF BASIC FOODSTUFFS

In the previous chapter, in looking at the wages of agricultural labourers, we stressed the importance of the set of prices faced by consumers if valid comparisons of cost of living and poverty are to be made between different classes in different regions. Within the context of this chapter, the importance of the set of prices faced by consumers becomes even more crucial if a valid assessment of the proportion of the populations below the "poverty line" in each region is to be made.

Table 4
Value of Basic Foodstuffs in Regional Prices, 1969-70 (See Appendix 3)

	Western Region		Eastern Region	
Size Class acres	Per Day Rs.	Per Month Rs.	Per Day Rs.	Per Month Rs.
Less than 1.0	0.65693	19.7	0.70398	21.1
1.0-2.25	0.72804	21.8	0.70727	21.2
2.25-6.25	0.79726	23.9	0.72772	21.8
6.25-15.0	0.83978	25.2	0.90689	27.2
15.0-30.0	1.01425	30.4	0.94628	28.4
Above 30.0	0.98617	29.6	0.87882	26.4
Non-agriculturists	1.11428	33.4	0.64010	19.2

Source: Calculated from raw data from *HCDA for UP*

If we look at Table 4 above, which gives the value of basic foodstuffs for different classes in the two regions, we notice that although the actual quantity of food consumed (see Table 1, earlier) was between 25% and 40% greater for agriculturists in the Western Region than in the East, the cost of this food was in no case greater than 12% above the Eastern cost. Indeed, the under one acre category in the West received 32% more food by weight than their Eastern cohorts at only 93% of the cost! Clearly agriculturists in the Eastern Region must have been facing a higher set of prices for their consumption than their Western cohorts.

Table 5
Average price per kg. of basic foodstuffs and fuel, 1969-70

Size Class	Western Region	Eastern Region
acres	Rs.	Rs.
Less than 1	0.65	0.92
1.0-2.25	0.72	0.88
2.25-6.25	0.75	0.89
6.25-15.0	0.74	1.03
15.0-30.0	0.82	1.04
Above 30.0	0.92	1.00
Non-agriculturists	0.92	0.92

Source: Calculated from raw data from *HCDA for UP*

We have calculated Table 5 above by dividing the values in Table 4 by the quantities in Table 1. It shows that whereas agricultural consumers in Eastern UP faced prices ranging between Rs. 0.88 per kg. and Rs. 1.04 per kg., the range in Western UP was between Rs. 0.65 per kg. and Rs. 0.82 per kg.- this higher limit still being lower than the lower price limit in the Eastern region! The exception was the non-agricultural category who paid the same average price of Rs. 0.92 per kg. in both regions. As we see from the proportion of consumption home-grown, this was the class which was most reliant upon the retail market for their food. The similarity in prices raises the question of the extent to which the retail market was fairly homogenous between the two regions for these households, a situation not found in the market for agricultural products produced by different classes in different regions.

Looking at the variation in average price per kg. for all basic foodstuffs in aggregate paid by the six agricultural classes in the two regions we notice that whereas in Western UP the less than one acre group paid the lowest price and the above 30 acre group the highest, this was not the case in Eastern UP. In the East both the 1.0-2.25 acre size class and the 2.25-6.25 acre size class paid a

lower price than the less than one acre group. The highest price of Rs. 1.04 was paid by the 15-30 acre size group. We must bear in mind that the figures are averages and that the higher prices paid by the larger size classes in each region may have to some extent represented a larger consumption of more expensive higher quality commodities. It does, however, suggest that in line with Bhaduri's theory, the most impoverished and indebted small cultivators in the Eastern Region may well have faced higher prices because of high implicit interest rates resulting from large seasonal price fluctuations. We have selected four items - wheat the staple foodgrain consumed in the West, rice - the staple foodgrain consumed in the East, milk representative of superior, high protein foodstuffs, and sugar and khandsari, and calculated the prices faced by different size classes for these commodities in each region. These are presented in the table below.

Table 6
Prices of Selected Commodities (Rs. per kg. 1969-70.)

Acres	Western Region (Rs. per kg)	Eastern Region (Rs. per kg)
Wheat		
Below 1.0	0.95058	1.00251
1-2.25	0.82750	0.91984
2.25-6.25	0.84814	0.95343
6.25-15.0	0.90368	1.16998
15.0-30.0	0.89861	1.11663
Above 30.0	0.93149	0.99894
Non-agriculturists	0.90295	0.92761
Rice		
Below 1.0	0.94334	1.18583
1.0-2.25	0.98945	1.10833
2.25-6.25	0.10557	0.10256
6.25-15.0	0.99972	1.27822
15.0-30.0	1.07157	1.07157
Above 30.0	1.17733	1.16543
Non-agriculturists	1.05066	1.20923
Milk		
Below 1.0	0.92795	1.01219
1.0-2.25	1.01693	1.00074
2.25-6.25	1.01573	1.00432
6.25-15.0	0.95010	1.08705
15.0-30.0	1.00457	1.04900
Above 30.0	0.97457	0.89781
Non-agriculturists	1.94099	1.32953
Sugar and khandsari		
Below 1.0	1.81303	1.13559
1.0-2.25	1.91269	1.57143
2.25-6.25	1.84304	1.82228
6.25-15.0	1.76132	1.67712
15.0-30.0	1.83835	2.01190
Above 30.0	1.86983	0.88906
Non-agriculturists	1.72016	1.72016

Source: Calculated from raw data from *HCDA for UP*

Looking firstly at wheat, the less than one acre size class in the Western Region paid the highest price per kg. of any size class in that region. Thereafter the price increased steadily from Rs. 0.83 per kg. for the 1.0-2.25 acre size class to Rs. 0.93 per kg. for the more than 30 acre size class.

There are some interesting points to be made with regard to this. Firstly, we are making the assumption that prices of these items were imputed on the basis of market prices. In the case of home-grown consumption this was the opportunity cost of consuming the output, i.e. the price that could be realised if it were sold rather than consumed. In the case of purchased items of consumption it was the market price faced by the consumer. Once again this reinforces what was said earlier about this group, that it was composed of a combination of predominantly agricultural labourers who are reliant upon the market for their consumption, and secondly, that it may well have included a substantial proportion of households who must have sold their output at a low post-harvest price, because of immediate cash requirements for rent and interest repayments, while being forced to purchase foodgrains for their own consumption at high inter-harvest prices.

The correlation between size of holding and price per kilogram reflects the higher average prices that larger landholders could command for their produce. The larger the landholder the greater the proportion of output that could be retained to sell when prices were at their highest. By contrast the smaller the holding, the less likely was the cultivator to have a surplus to tide him over, so the larger the proportion of output that had to be sold at low post harvest prices.

It is suggested that a similar pattern applied for Eastern UP, although the correlation was not so straightforward. Both the 6.25-15.0 acre size class and the 15.0-30.0 acre size class imputed a higher price to wheat than any other group, including the less than one acre size class which faced a slightly lower price. But these were precisely the groups who were likely to be more commercially

oriented if we accept the hypothesis that it was the middle-sized group of farmers who were the most enterprising, innovative and "capitalist", rather than the large farmers of the region. It was they who were most likely to hold back their output till they could obtain the highest price.

Rice was included in Table 6 as it is the staple in the East. In that region the pattern of rice prices was similar to that for wheat. The highest price was imputed by the 6.25-15.0 acre group which suggests, once again, that this size class was taking advantage of its capacity to hold back stocks until prices rose. The second highest price per kilogram for rice was faced by the under one acre group, which in view of the importance of rice in consumption in this region is of considerable significance. (It is the most important commodity consumed by weight: see Appendix 1.) We know from table 4 that despite its importance in consumption, home-grown rice contributed less than 50% of the total rice consumed by the less than one acre size class - a smaller proportion than any other size class in the region. We suggest that this is in part the result of an incapacity to produce sufficient on these small holdings to feed the household, but once again it also points towards a forced involvement with the market as suggested by Bhaduri's theory and outlined in detail in Chapter 8, with a high own rate of interest implicit in the high prices that these households have to pay for their consumption loans of grain.

We have included sugar and khandsari because this is an example of a cash crop which was predominantly grown along with wheat on commercially-oriented farms in Western UP. It is most interesting that except for the 6.25-15.0 acre size class for which the Eastern price was infinitesimally higher than the Western, the price for sugar

and khandsari was uniformly higher in the Western Region for all size classes. This is quite contrary to the prices for the other commodities considered. Overall, there was much less variation in the price of sugar by size class than for either wheat or rice, which points towards the price being controlled by external factors rather than the cultivators themselves in this region.

In the Eastern Region the market for sugar was largely controlled by the refineries, with a system of hypothecation of the crop, as already outlined in Chapter 7. There were wide variations between size classes in prices paid, with the lowest prices imputed by the largest and smallest size classes. It is suggested that the very largest landholders, above 30 acres, were able to plant sugar extensively and in view of the quantities they marketed were not so concerned about fetching the highest price for their crop, but more concerned so sell it. Small cultivators had no choice because of their needs for cash in order to meet rent and interest commitments and must therefore have sold their crop at the low post-harvest price as was the case of wheat and paddy, or for the same reasons it may have been sold to middlemen before it was harvested at a discounted price. It is the cultivators with holdings between 15 and 30 acres who were who are most likely to be independent of the middle-men and in the best position to hold on to their crop and therefore to obtain the best price for it.

Milk has been included as an example of a high quality foodstuff. There was more similarity in the prices imputed to this commodity in the two regions than for any other. In the Western Region the under one acre size class paid the lowest price whereas in Eastern UP it was the above 30 acre size class that paid the lowest price.

These prices have considerable significance, both from the point of view of making accurate assessments of the real values of commodities which entered into consumption, and therefore of the proportion of the population which could be considered as living below the conventional "poverty line", and from the point of view of illustrating that cultivators with different sized holdings face different market conditions. It is quite clear from this data that the marginal cultivators of both regions, (i.e. those with holdings of less than one acre) were very disadvantaged in respect of the terms on which they entered the market. It seems that in both regions they needed to sell their output directly after the harvest while prices were at their lowest, but had to purchase commodities for consumption at times when prices were at their highest. This gives further credence to Bhaduri's theory, in which he postulated an own rate of interest for the poorest cultivators who need to borrow for consumption when grain prices were high and repay an equivalent money value of grain when the prices of their output were at their lowest. [*Bhaduri, 1973, 122*]

4. PRICE INDICES (See Appendix 4)

We have shown how important differential prices in the two regions were in determining the value of food consumed. Clearly, if we were to compare the values of consumption as presented for the two regions in the prices cited, we would end up with a nonsense - the real value of Eastern consumption would be overestimated whereas the real value of Western consumption would be underestimated.

In order to make a meaningful comparison of the value of consumption in the two regions we therefore need to produce some sort of standardisation. This is a problem faced by anyone who tries to

compare distribution between areas. [*Beckerman, 1966*] We could, of course, value Eastern Consumption in Western prices and vice versa, resulting in the figures presented in Appendix 4, but this produces a distortion as it overestimates the importance in consumption of the composition of the particular basket of commodities on which the weights were based, and the prices used will reflect the tastes, quality and most importantly, structure, of the underlying economy in terms of its capacity to produce a particular commodity. This is known as the index number problem and has been widely written about. [*Clark, 1957, 17*]

Our solution has been to employ Fisher's index. His "ideal index" rests upon averaging the full Laspeyres and Paasche indices, using the geometric mean:

$$\frac{\sum p_c\, q_B}{\sum p_B\, q_B} \times \frac{\sum p_c\, q_c}{\sum p_B\, q_c}$$

This results in a mathematically satisfactory solution which does not give undue weight to either the Laspeyre or the Paasche basket of commodities and is regarded as near a "perfect" index as it is possible to get. [*Yeomans, 1968, 135*]

If we were to deflate the values by the full amount of the index we would achieve a value in the prices of which ever region had been used as the base. What is required, however, is a set of values which in some way represents the average of both sets of prices. Our solution has been as follows:

Having deflated each regional set of values by the appropriate Fisher price index (see Appendix 4) to give a set of Eastern Values in Western Prices and a set of Western Values in Eastern Prices we have

performed the following operation for each region. The equation of the Eastern Region is set out below

$$\frac{\sum P_e Q_e - \sum P_w W_e}{2} + \sum P_e Q_e$$

= Eastern Quantities in Standardised Prices.

Where: $\sum P_e Q_e$ = $\sum$ Eastern Quantities in Eastern Prices i.e. Eastern Values

$\sum P_w Q_e$ = $\sum$ Eastern Quantities in Western Prices

By halving the difference between Eastern Quantities in Eastern Prices and Eastern Quantities in Western Prices and adding this amount to the former we should theoretically achieve a set of values in base 100 prices. Reversing the subscripts we follow the same procedure for the Western region. The resulting set of standardised values, both of which are in "base 100 prices" for per capita consumption of basic commodities per month (30 days) is as follows:-

Table 8
Per Capita Per Month Consumption in Regional Prices and in Standardised Prices for Basic Commodities in Each Region, 1969-70

	Western Region		Eastern Region	
Acres	in regional prices	in standardised prices	in regional prices	in standardised prices
Below 1.0	19.7	21.2	21.1	19.7
1.0-2.25	21.8	23.3	21.2	20.0
2.25-6.25	23.9	25.6	21.8	20.5
6.25-15.0	25.2	28.4	27.2	24.4
15.0-30.0	30.4	33.0	28.4	26.3
Above 30.0	29.6	31.5	26.4	24.9
Non-agriculturists	33.4	33.9	19.2	18.9

Source: Calculated from raw data from *HCDA for UP*

Taking agricultural classes only, we notice that in every instance the standardised value of consumption for the Eastern Region was below that for the Western Region - the difference becoming more marked with larger holding size. The less than one acre group showed

the closest correspondence between the regions with a difference of only Rs. 1.5 per month. We have mentioned earlier the possibility that the Western estimates for the one acre group may have been over-estimates, so these figures must be treated with some caution.

Taking each region separately, the inequalities between classes was much greater in the Western Region, with a range of Rs. 11.8 between lowest and highest size classes, than in the Eastern Region with a corresponding range of Rs. 7. This reflected very closely the larger inequalities in calorie and quantity consumption in the West than in the East. Non-agriculturists were once again in an anomalous position with the lowest value of consumption in the Eastern Region and the highest in the Western Region. It seems clear that we have been dealing with two quite different classes in the two regions - one of whom was at the bottom of the economic scale and the other at the top! This fits in well with what has already been said about non-agriculturists in Chapter 8.

We have been fortunate in having both quantities and values of basic consumption. This has allowed us to work out prices and therefore accurate deflations in order to make values comparable. There is also, what we shall refer to as non-basic consumption, to consider. Unfortunately we only have data on values for these items, a full analysis of which is presented below.

5. NON-BASIC CONSUMPTION

In Table 9, below, we give the value of non-basic consumption. This comprises the following items, mustard oil, milk products, eggs, meat, fish, cooked food, fuel, cloth, clothes, shoes, building materials, education, stationery, etc. medicine, ornaments, tobacco

and tobacco products, utensils, entertainment and miscellaneous. (See Appendix 4 for data on which the totals were based.)

Table 9
Value of Non-Basic Consumption per Capita per month in regional prices, 1969-70

	Western Region		Eastern Region	
Acres	per day Rs.	per month Rs.	per day Rs.	per month Rs.
Below 1.0	0.13965	4.2	0.13780	4.1
1.0-2.25	0.30541	9.2	0.22015	6.6
2.25-6.25	0.35305	10.6	0.22743	6.8
6.25-15.0	0.41292	12.4	0.25961	7.8
15.0-30.0	0.48085	14.4	0.32479	9.7
Above 30 acres	0.59935	18.0	0.32680	9.8
Non-agriculturists	0.46297	13.9	0.24476	7.3

Source: Calculated from raw data from *HCDA for UP*

Looking at the monthly figures, which throw the differences into greater relief, the most striking feature was the similarity in the values for the under one acre group in the two regions - respectively Rs. 4.2 and 4.1 for West and East. From one acre onwards there was a considerable divergence between the distributions with the totals for the Western Region consistently higher than for the Eastern Region. This was particularly the case in the largest size group above 30 acres with Rs. 9.8 in the Eastern Region, compared to Rs. 18 for the Western Region. This latter figures is quite a big jump from the Rs. 14.4 of the 15-30 acre size class.

The table below shows the value of consumption excluding food items and fuel, i.e. cloth, clothes, shoes, education, stationery, medicines, ornaments, tobacco, utensils, entertainments and miscellaneous.

Table 10
Value of Non-Basic Consumption (excluding food and fuel) Rs. per capita per month and per day, 1969-70

	Western Region		Eastern Region	
Acres	per day Rs.	per month Rs.	per day Rs.	per month Rs.
Below 1.0	0.07307	2.2	0.07747	2.3
1.0-2.25	0.16936	5.1	0.09481	2.8
2.25-6.25	0.21300	6.4	0.11593	3.5
6.25-15.0	0.27048	8.1	0.15778	4.4
15.0-30.0	0.33877	10.2	0.20741	6.2
Above 30.0	0.42178	13.6	0.22328	6.7
Non-agriculturists	0.23694	7.1	0.11275	3.4

Source: Calculated from raw data from *HCDA for UP*

Unfortunately we have no way of knowing how the prices compared in the two regions. As it was necessary to buy these items on the retail market we can expect greater similarity in prices than was the case for home-grown basic food commodities. We intend to make the assumption that these values represented the quantities consumed. On an a priori basis one would certainly expect access to these items of consumption to be greater in the more developed Western Region than in the backward Eastern Region.

It is interesting that in the Western Region there was a clear correlation between size of holding and value of non-basic consumption, with the largest group having the highest consumption for both lists, including and excluding food. However, the difference between the consumption of the above 30 acre group and the 15-30 acre group was much greater when non-basic food was included than when it was not. This would seem to indicate that these very large farmers substituted a larger consumption of non-basic foods for basic foods in their consumption pattern and would explain why they had only the second highest consumption of basic foodstuffs.

Table 11 shows non-basic commodities as a percentage of the value, in standardised prices of basic food consumption. Looking first at the totals which included non-basic food and fuel it is noticeable that for both regions there was a big jump between the less than one acre group and the 1-2.25 acre group - but this was more marked in the West than in the East. This is a pattern which has already been discerned for food consumption. Thereafter, there was a general upward trend in both regions. But for the Western Region there was a very big increase for the above 30 acre size class whose non-basic consumption as a percentage of basic food consumption equalled 57.1% compared to 38.6% for the same size class in the Eastern Region.

Looking at the percentages for non-basic consumption excluding fuel and food we notice that the same trend as above is observable for the Eastern Region, with a big jump between the less than one acre group and the 1.0-2.25 acre group, and another big jump between the 6.25-15.0 acre group and the 15.0-30.0 acre group.

Table 11
Non-Basic Consumption as a Percentage of Standardised Values of Basic Food Consumption, 1969-70

	Western Region		Eastern Region	
	includes food and fuel	excludes food and fuel	includes food and fuel	excludes food and fuel
Acres	%	%	%	%
Below 1.0	19.8	10.4	20.8	11.7
1.0-2.25	39.0	21.9	33.0	14.0
2.25-6.25	41.4	24.6	33.0	16.6
6.25-15.0	43.7	28.5	31.6	18.0
15.0-30.0	43.6	30.9	36.9	23.6
Above 30.0	57.1	40.3	39.4	26.9
Non-agriculturists	41.0	20.9	38.6	17.9

Source: Calculated from raw data from *HCDA for UP*

The significance of these figures is the light they throw on the nature of relative inequalities in the two regions. There was a clear division between the less than one acre group and the rest of the agricultural population in the Western Region, as one would expect in an economy with a large percentage of households absolutely landless. There was also a clear division between the above 30.0 acre group and the rest of the distribution, which was not that surprising in view of their capacity to generate high incomes from their holdings.

The big jump between the one acre group and the rest of the distribution for non-basic consumption in the Eastern Region disappeared when we eliminated food and fuel from the percentages - giving us a smooth upward trend and thus a much more homogeneous distribution than we had in the West, The much lower overall absolute amounts and proportions of total expenditure spent on non-basics in the East by all size groups indicates what we know already - that there was both less prosperity and less access to such goods in that region - and also less inequality.

6. TOTAL CONSUMPTION - THE POVERTY LINE

In this final section we will consider total consumption, i.e. the basic foods which we looked at in parts 1 and 2 plus the non-basic consumption (food and other items) we considered in the last section. We are faced at the outset with a problem, for although we have been able to produce a set of standardised values for basic foods, in the absence of quantities, this has not been possible for non-basic commodities. It would be spurious to deflate these latter items by the deflators calculated for basic foodstuffs, so we have taken the decision to add the standardised values of basic foodstuffs to the

values, in regional prices, of non-basics on the assumption that the market for the latter was more uniform between the regions than the market for the former. We recognise that this procedure is imperfect, but nevertheless consider it gives a more accurate set of comparative figures than if no deflated figures had been included at all. The result is Table 12, below.

Table 12
Value of Total Per Capita Per Month Consumption (Basic Foodstuffs) deflated Standardised Prices + other non-basic commodities in regional prices, 1969-70

	Western Region	Eastern Region
Acres	Rs.	Rs.
Below 1.0	24.4	22.0
1-2.25	28.4	22.8
2.25-6.25	32.0	24.0
6.25-15.0	36.5	28.8
15.0-30.0	43.2	32.5
Above 30.0	44.2	31.6
Non-agriculturists	41.0	22.3

Source: Calculated from raw data from *HCDA for UP*

As expected, Eastern values were below Western values for every size class. The smallest difference between the two regions was in the under one acre size group. In the Western Region these totals retained the large gap between this size group and the next that we remarked upon in the previous section, but it no longer stands out for there are now quite wide variations between all the classes in the West with the exception of the 15-30 acre and the above 30 acre groups, which were clumped together. In the Eastern Region there was clumping of the value of consumption of the two smallest size classes and of the two highest. The inequalities between the two regions became very marked for the larger size classes - specifically above 15 acres. The range was Rs. 20.8 for the Western Region from lowest to highest and Rs. 10.5 for the Eastern Region.

What did these values actually mean in terms of poverty? This is a very contentious concept - there has been much talk of a poverty line and attempts by Indian statisticians and economists to assess how many people fall below this hypothetical minimum. This has already been discussed fully in Chapter 1. The "poverty line" as has already been shown earlier, is a very arbitrary concept and really serves only to highlight the extent of India's problems. In 1962 the Indian Government pledged itself to do away with poverty by the year 1975-76. It fixed a minimum level of income of Rs. 18 in 1957-58 prices (Rs. 20 in 1960-61 prices) as the aim, below which no member of the population of India should have to subsist. Subsequent writers estimated that Rs. 15 in 1960-61 prices (Rs. 13.5 in 1957-58 prices) was closer to the subsistence limit and this latter has since become incorporated into the literature as a sort of magic figure. The figure chosen, of course, depends a lot on the items of consumption included, and the deflators selected. Despite its shortfalls, there are advantages in terms of comparability, to using this widely quoted figure.

We deflated the consumption of the under one acre size class by the Consumer Price Index for Agricultural Labourers for Uttar Pradesh in the first instance to 1957-58 prices, and then to 1960-61 prices. [*Gov't of UP, 1969-70, Table 11.8*] Consumption for the remainder of the distribution was deflated by the general index for "other classes". This means that the totals for the under 1 acre size class have to be deflated by an index of 214 to bring them to 1957-58 totals, and then increased by 11.1% to raise them to 1960-61 totals, and the same procedure repeated with an index of 197 for the other classes. The results are as follows.

Table 13: Value of Total Consumption deflated to 1960-61 Prices, 1969-70

Acres	Western Region Rs. (1961 prices)	Eastern Region Rs. (1961 prices)
Below 1.0	11.7	10.9
1.0-2.25	15.5	12.4
2.25-6.25	17.4	13.1
6.25-15.0	19.9	15.7
15.0-30.0	23.5	17.7
Above 30.0	24.0	17.2
Non-agriculturists	22.3	12.1

Source: Calculated from raw data from *HCDA for UP*

These figures are in the same range as those calculated in Chapter 8 on the basis of the 25th Round of the National Sample Survey for small cultivators and wage earners for 1971. There we found that the marginal farmer households included in the survey in Western UP were subsisting at an average per capita per month consumption level of Rs. 15.8 in 1960-61 prices, which is very little different from the Rs. 15.5 per capita per month figure calculated for the 1.0-2.25 acre size class from the HCDA sample. As we have already shown in Chapter 8 that the majority of the NSS sample of marginal cultivators for the region must have been drawn from those with holdings up the 2.5 acres, then the similarity of these figures reinforces the accuracy of the data and the validity of our techniques in dealing with it. For the Eastern Region the average per capita per month consumption of small cultivators on the basis of the NSS 25th Round data worked out at Rs. 12.9. We showed in Chapter 8 that for the Eastern Region the 10% of poorest small cultivators included some with holdings up the 5.0 acres. If we average the figures for the 1.0-2.25 acre size class and the 2.25-6.25 acre size classes for the HCDA sample above we arrive at a per capita per month consumption figure of Rs. 12.8, almost identical to that of the NSS sample, and once again

evidence for the validity of both sets of data.

We have already made the assumption that the under one acre size class of the HCDA sample for both regions, but particularly for the Western Region, contained a large proportion of landless agricultural labourers. As the NSS 25th Round sample contained wage-earners who derived their livelihood from non-agricultural occupations as well as agricultural labour, the comparisons between the samples are less easy to make than was the case for small cultivator households. Indeed the National Sample Survey Figure for per capita monthly consumption for wage earners in the Western Region was Rs. 16.7 considerabaly above the Rs. 11.7 of the under 1.0 acre size class of the HCDA sample. This was probably because while the HCDA data for this size class contained within it a combination of the poorest agriculturists and agricultural labourers, the NSS figures included some better off non-agricultural wage-earners. For the Eastern Region the National Sample Survey figure for wage-earners was Rs. 13.5 per capita per month, compared to Rs. 10.9 for the HCDA sample. This was not such a large discrepancy as was the case for the Western Region, and reflected the greater homogeneity of the wage-earner population of the Eastern Region, with fewer non-agricultural employment opportunities, and the majority obtained their livelihood from a combination of agricultural labour occupations and cultivation of minute holdings.

The results in table 13 above indicate that in Eastern UP all those with less than 6.25 acres of land (which was regarded by the Government of UP as the lower limit for a viable holding) can, on the definition outlined above, be regarded as living below the "poverty line". Furthermore, all non-agriculturists in Eastern UP also came below this limit. By contrast, only the below one acre size group

came below this limit in Western UP and non-agriculturists were nowhere near it.

Taking the National Sample Survey figures, then nearly 35% of the agricultural population of Western UP was either landless or cultivated less than one acre of land in 1971-72. For the Eastern Region, about 70% of the population was landless or cultivated less than 5 acres of land. Even on a conservative estimate, therefore if our consumption data is accurate, round about 1970 twice as many people were living in poverty in Eastern UP than in the Western Region.

CONCLUSIONS

The following important points emerge from the foregoing analysis. First there was a clear correlation between the level of consumption and size of holding in both regions. Second, the level of consumption on every index chosen was at an overall lower level for all classes in the Eastern Region than it was in the Western Region. Thirdly, while there was less inequality in the distribution of consumption in the Eastern Region than was the case in the Western Region we find in the latter a clear discontinuity between the low level of consumption of the under one acre group and the rest of the distribution which was not apparent in the East. Fourthly, the percentage of home-grown consumption was higher in the Eastern Region than in the Western Region, especially for the smaller size groups. Finally, prices for most basic commodities seemed to be overall at a higher level in the Eastern Region than in the West.

What basic conclusions can we draw from these facts? The most fundamental direction in which they point is that the problem of poverty was rather different in the Eastern Region than it is in the

Western Region in the early 1970s. On the basis of the Rs. 15 a month norm in 1960-61 prices, then 40% of the rural population was living below the poverty line in the Western Region at that time and over 90% in the Eastern Region. In themselves these figures mean little, but when we know that this 40% in the West was made up exclusively of the under one acre group, a large proportion of whom were completely landless labourers, whereas the Eastern poor were spread over all landholding groups up to 6.25 acres, then the data takes on a new significance. Clearly, poverty in the West must have been correlated to landlessness, and the processes of economic development which create landlessness, whereas poverty in the East was the result of low output and oppressive semi-feudal production relationships.

NOTES

(1) Wheat, Rice, Gram, Barley, Jowar, Bajra, Maize, Gojai, Gochana, Bejhar, Arhar, Urd, Masoor, Other Pulses, Vegetables, Milk, Deshgi Ghee, Sugar and Khandsari.

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CHAPTER 10

CONCLUSION

1. THE BACKGROUND OF DEVELOPMENT

2. THE MEANS OF PRODUCTION - LAND AND CAPITAL

3. AGRICULTURAL PRODUCTION AND INCOME GENERATION

4. THE POOR

5. THE POVERTY LINE

REFERENCES

The fundamental concern of this work has been to identify the extent of poverty in Western and Eastern UP. But more that, it sought to illuminate the processes by which poverty was generated in each region in the early 1970s. In order to do this we took a theoretical stance which drew extensively upon Marxist economics. Accordingly, we characterised each region in terms of a mode of production, with all that entails in terms of the analysis.

A mode of production is defined as an integrated complex of social relations and forces of production, within which can be distinguished certain classes on the basis of their role in the production, circulation and appropriation of the social product. It was our contention throughout this work that the mode of production in Western UP in the early 1970s could be characterised as tending towards the capitalist model, with an emergent class of capitalist farmers, a substantial class of landless wage-labourers who depended for their livelihood on selling their labour power, and substantial reinvestment of the agricultural surplus so that the organic composition of capital was constantly increasing. By contrast, we characterised the Eastern Region of UP at this date as predominantly semi-feudal with a vast population of impoverished subsistence-oriented marginal farmers who supplemented their meagre livelihood from their tiny holdings by hiring out their labour where they could. Although the very large landlords who characterised the region in the 19th century were a thing of the past, tenancy was widespread, so that rent was still a major source of surplus extraction. While pockets of capitalist farming and investment undoubtedly existed within the region they were too small to exert a sufficiently dynamic effect upon the economy to drag it out of its overwhelmingly subsistence orientation. Levels of agricultural surplus were on the whole low,

and more likely to be used unproductively than reinvested productively.

Throughout the thesis we drew heavily upon the work of Amit Bhaduri, who characterised the agrarian class structure in India as corresponding to "a complex co-existence of 'feudal remnants' (or 'semi-feudalism') sustained largely by a nexus of forced commercial relations and 'capitalist tendencies' expressing themselves in the form of expansion in agricultural production through 'progressive' farming, "although our evidence suggests that capitalism was more dominant in the West than Bhaduri's generalisation would suggest. In particular, we used Bhaduri's debt-tying mechanism where appropriate, to show how specific production relations in each region may well have contributed to patterns of land, income and consumption distributions.

1. THE BACKGROUND OF DEVELOPMENT

This all occurred against a background of historical development which differed widely between the regions and left its mark indelibly on the regional economies of Western and Eastern UP. Of particular importance was the evolution of land relations. In the Western Region, British land revenue policy reinforced a pattern of land ownership and tenure which was particularly conducive to agricultural growth. A high degree of security of tenure was accorded to the cultivator as proprietor or tenant, and the landlord class was largely excluded from economic and political influence. With the Abolition of Zamindari shortly after Independence, the position of the cultivator was further strengthened when many were accorded full ownership rights to their holdings. At the same time the position of those vestiges of the landlord class remained was severely curtailed with the passing of ceiling legislation, so that the economic and

political power in the region was consolidated in the hands of a class of rich peasants.

In much of what is now Eastern UP land tenure policy followed by the British differed substantially from that in the West. It contained an area of Permanent Settlement in Banares Province and of Talukdari Settlement in Oudh, both of which resulted in the economic and political dominance of the large landlord class, with the peasantry being accorded very little security of tenure. Sub-proprietors and sub-tenancy proliferated, and despite later attempts to accord security of tenure to the cultivators, these were often evaded. While Zamindari Abolition effectively abolished the top-strata of the landlord class in the region, it reinforced the position of land-owners in general, who were thus in a position to consolidate their semi-feudal dominance over a vast population of impoverished tenants whose ranks were swelled by population growth.

The regions also differed in terms of economic development. The British invested heavily in canals in Western UP and encouraged commercial agriculture with stress on cash crops. This inevitably led to the development of the market, and to the interlinked small-scale industry needed to support commercial agriculture. After Independence, scarce capital resources continued to be directed towards Western UP so that irrigated area, in particular, continued to increase. With the introduction of the "Green Revolution" package of practices in the mid-1960's the Western Region was ideally placed to take advantage of the new seeds with their need for assured irrigation, and indeed, resources were deliberately targetted in that direction in a policy of agricultural development which entailed "betting on the rich".

By contrast the British did not consider that the returns to canal irrigation would be sufficient to justify such investment in the Eastern Region, and it was not until the 20th century that public irrigation was started in that region. It was only in the latter 1970s and the 1980s and a policy of tube-well development, that levels of irrigation in some areas of Eastern UP, have begun to match those in the West.

2. THE MEANS OF PRODUCTION - LAND AND CAPITAL

Fundamental to an approach which took the mode of production as central to its analysis was an examination of the distribution of the means of production. This was the subject matter of Chapter 4, which dealt with land, and of Chapter 5 on irrigation and capital.

There was a very significant difference in the distribution of land in the two regions. Of particular note was the fact that in the Western Region more than one third of the rural population operated no land, and was therefore principally reliant upon agricultural labour for a livelihood. At the same time there was a very substantial class of rich peasant cultivators with holdings between about 5 and 25 acres, many of whom were owner occupiers - the outcome, fundamentally, of advantageous British land settlements. We also identified, at the same time, a class of middle peasantry with between 2.5 and 5 acres of land - just enough to provide a sufficient level of output to assure their immediate subsistence.

The whole idea of identifying classes in Indian agriculture on the basis of cultivated area has come in for criticism from Utsa Patnaik [*1976*][*1987*][*1988*] who believes that farm-size groupings are a poor index of social class because they fail to take account of household size, consumption needs, current and past investment,

whether the land is irrigated and its productivity. It was for such reasons that in our own analysis of the class structure of the two regions we looked in detail at capital and productivity as well as land size. We found that for the Western Region by far the bulk of irrigated land was concentrated in the hands of those cultivators with between 5 and 25 acres, already tentatively identified in Chapter 4 as rich peasants and capitalist farmers. Similarly, for other items of agricultural capital, they were certainly the best endowed - particularly with regard to items such as threshers, powered pump-sets and tractors which substituted for the traditional livestock forms of motive power. We were therefore able to conclude that this class was investing productively, and this was backed-up by the data on asset-structure.

On the basis of this data, a class structure for the Western Region was posited in which the major polarisation occurred between the rich and capitalist farmers on the one hand and a class of landless agricultural labourers on the other, who were dependent for their livelihood on hiring their labour to the former. There also existed a substantial class of middle-peasantry who relied upon a combination of self-cultivation and labour-hiring for their livelihood. It was suggested in line with Bhaduri's theory, that the higher productivity of these rich and capitalist farmers' holdings had led to high wage levels to agricultural labourers, which was instrumental in sustaining the middle-peasantry and therefore stabilising the land-holding structure in the form identified.

We found the landholding structure in Eastern UP to differ substantially from that in the West, and to bear many of the features imprinted upon it by the historical development of land revenue policy. The most prominent feature identified was the proliferation

of small and marginal holdings of below 2½ acres in size, which excluding households operating no land, comprised more than 62% of landholding households. Although there existed a class of landless in the region, it comprised less than 14% of the total households - a much smaller percentage than the third in the West. At the same time cultivators with more than 10 acres of land, whom we classified as a class of rich peasant/landlords in the Eastern Region comprised only 4.4% of the landholding distribution in that region. This was the class from which capitalist farmers were most likely to arise, but during the early 1970s had not emerged in sufficient numbers to have much impact on the economy of the region. There is also the point that this group of landholders was much less likely to have its holdings irrigated than was the case in the West, with the inevitably consequence for productivity. As a result, the agricultural surplus in the region could be expected to be depressed in Eastern UP. Capital was much more likely to be of the traditional variety, with livestock forming the most important component. Items of capital equipment, such as pumpsets, threshers and tractors were much less in evidence. It was also shown that the assets of this class were much more likely to be held in unproductive forms such as vacant house sites than was the case in the West.

A most important factor identified in Chapter 4 was the very considerable extent of tenancy in Eastern UP. In particular, non-recorded leases and crop-sharing were much in evidence, suggesting that not only was the population composed of a vast population of marginal cultivators, but that they were also largely tenants. Leasing out was predominantly the prerogative of the rich farmers identified above, and it was suggested that rent was a significant means of surplus appropriation. In Eastern UP, therefore, we were

beginning to identify a class structure in which the principal polarisation was between a class of rich farmer/landlords who combined self-cultivation with income from rent and usury, and who had low levels of productive investment, and an enormous class of impoverished poor peasants who scraped a living with a combination of self-cultivation of their small holdings, and agricultural labour where they could find it.

3. AGRICULTURAL PRODUCTION AND INCOME GENERATION

In Chapters 6 7 we used data from the Farm Management Studies of Muzaffarnagur in Western UP and of Deoria District in Eastern UP to provide information on farm production. Inevitably the different landholding size structures of the two regions, which were also represented in the two districts covered by the Farm Management Studies, led to such different levels of labour and capital inputs being used that the bulk of cultivators in the two districts were effectively operating on different production functions. This was one of the most important conclusions of these Chapters. But, even where the size classes coincided, there were substantial differences in both the organization and results of cultivation between the two districts.

In both districts, the smaller the holding the larger the input of labour per hectare. But in Deoria the smallest farms had very high inputs of family labour - which would otherwise have remained unemployed given the paucity of alternative employment opportunities in the region as a whole. In Muzaffarnagur district, while relatively large inputs of family labour were in evidence for the smallest size classes, they were substantially below those for Deoria. For medium and large holdings in Muzaffarnagur, hired labour was

almost as important as family labour in production, and labour inputs in general showed an inverse relationship with holding size. It was also found that capital inputs gained in importance with size of holding, and reinforced the conclusions of Chapter 5. In particular, it appeared that for medium and large sized rich farmers in the district, capital was in the process of replacing livestock as the main means of draught power in production. It is contended, that as a direct result of greater use of capital, there was evidence that the traditional inverse relationship between size of holding and productivity, was rapidly disappearing in the district, to be replaced by a situation in which constant returns to scale was the norm. By contrast, in Deoria District, even for larger rich farmers capital inputs were much less important, so that production techniques were largely along traditional lines, relying overwhelmingly upon a combination of labour and livestock inputs. As a result the traditional inverse relationship between size of holding and productivty was in evidence for every crop studied.

The difference in cropping pattern in the two regions was reflected in the Farm Management data for the two districts. Wheat was much more important in Muzaffarnagur district, and paddy in Deoria. This inevitably meant that the high yielding varieties programme had far greater impact in the former district than the latter. The rich farmers of Muzaffarnagur District, particularly those with irrigated holdings, and by implication, of the region as a whole, were ideally placed to cultivate the new wheat varieties, and as a result they were soon reaping the resulting gains in productivity.

Although the data sources used in this thesis refer largely to the period about 1970, at which date the adoption of high yielding

varieties and their associated package of practices was by no means universal, it was clear from the evidence examined that their introduction was having a profound impact on the agriculture of the Western Region of Uttar Pradesh which was not shared in the Eastern Region.

In particular, it reinforced a spiral of prosperity which already existed. The large absolute outputs obtained by medium and large rich farmers, gave these already enterprising cultivators the capacity to reinvest their surpluses back into agriculture - thereby increasing the organic composition of capital, with tube-wells and powered pump sets replacing Persian wheels and canal irrigation; and tractors and threshers replacing bullock labour where appropriate. The fact that there was a deliberate policy of directing resources and credit to already well-endowed areas and to rich farmers, reinforced this tendency. As a result, more and better investment begat higher yields, which in turn led to higher incomes, and so the rich farmers continued to consolidate their position, becoming progressively more capitalist in their production orientation.

Inevitably, the relations of production evolved in the process, with greater reliance upon hired labour, as the cultivation of hyv's, and the increase in double cropping demanded precise timing of agricultural operations, and higher yields meant large demands for labour at harvest time. As a result wages rose. At the same time, some forms of labour tying traditionally associated with semi-feudal agriculture were adapted to cope with the new circumstances. Widespread indebtedness of poor peasants is a pervasive aspect of Indian agriculture, and it is by no means confined to the less developed areas. It is contended that in Western UP, it was a means whereby capitalist and rich farmers assured themselves of sufficient

labour when required, rather than as in the case of Eastern UP of providing the rich farmers with an important element of their income.

As a result of high labour demand and high wages, it was not only the rich farmers who gained as a result of the introduction of high yielding varieties. We have already mentioned that we believe this led to the landholding structure stabilising with a large class of middle peasantry. This means that Lenin's original theory of the development of capitalism in agriculture whereby the class structure is progressively polarised on the one hand between a class of capitalist farmers owning or controlling land and other means of production, and on the other a class of landless agriculture labourers, who must sell their labour in order to subsist, is somewhat confounded by the reality of agricultural development in Western UP. However, this is not to say that the agricultural labourer population did not continue to expand throughout the 1970's. In retrospect, evidence indicates that it did, as poor marginal farmers gave up their land either as a result of expropriation by rich farmers, or voluntarily because it became more worthwhile to work full-time as well-paid agricultural labourers rather than cultivate small plots.

It has been maintained, throughout the thesis that in the Eastern Region, the rich peasantry, was simply not large enough to exert a dynamic effect on the agricultural economy of the region. The evidence of the farm management study for Deoria district, also indicated that where it did exist it was by no means as productive as in the West. Not surprisingly, in view of the lower level of irrigation and other capital inputs, yields of all the crops cultivated by this class, and looked at in detail were substantially below those in the West. At the time of the Farm Management Study, the Green Revolution package of practices had barely touched the

region. As a result, farm incomes compared across approximate size classes, were significantly lower in Deoria District than in Muzaffarnagur. Consequently, the investible surplus in the Region was much below that of the West.

We showed, in Chapter 4 that the bulk of the cultivating households of the Eastern Region were concentrated in the under 2.5 acre size class. The farm management data for Deoria district provided some valuable insights into the farm economy and income generating aspects of this vast class of poor peasants. It was immediately apparent that their resource position was very poor, not only were their holdings small, but the principal input was family labour in huge quantities. Capital was scarce, and as shown in Chapter 5, rudimentary, with livestock the means of draught power. Very large labour inputs resulted in relatively high yields in relation to larger cultivators in the region, although much below those obtained in the West. These poor peasants achieved a higher net profit and farm business income per hectare than any other size class in the district, but their small size of holding meant that the incomes from cultivation were not adequate to sustain them, and livestock products contributed a larger percentage of total income than crop output.

Despite the extremely large labour input into their holdings, less than one third of male family labour time was actually spent on farm work, and for more than half of their available time they were in fact unemployed. Although large farmer rich cultivators hired labour in considerable quantity, work from this source in fact filled an average of less than 4% of the total time available of small cultivators. This was the consequence of there being only a small class of rich farmers in the region alongside an enormous class of

poor peasants. Agriculture itself, was simply not capable of generating enough employment to fill the potential demand. At the same time, the economy of Eastern UP, as a whole, had little industry at this date, so the excess labour in agriculture could not find an outlet there. As a result wages were low. In the absence of alternative employment, poor peasants attempted to cling on to their small holdings at all costs. Such a situation gave rise to debt-bondage, and it is not surprising that a significant proportion of these households had a level of debt to assets which was higher than for any other size class in the district - of which 95% was backed by land. It is statistics such as this which add credence to Bhaduri's theory of the way in which semi-feudal agriculture is perpetuated.

It is clear from the data contained within the Farm Management Studies that there was far greater potential for the generation of wide income inequalities in the agriculture of Muzaffarnagur District, and by implication of Western UP, than was the case of Deoria District and the Eastern Region. Overall, the picture of Eastern UP that emerged from this chapter was one of a fairly uniform low level of living for the bulk of cultivators.

4. THE POOR

Poverty has many dimensions, as has become apparent in the course of this work. Limited access to land, employment, incomes, assets, credit and expenditure are all, in different degrees, dimensions of the same problem. In examining each of these aspects in turn we attempted not only to gauge the depth of the problem, but also to uncover something of the mechanism by which poverty itself was generated in each region, and why poor people stayed poor.

Having analysed in some detail the factors and mechanisms making

for inequality and poverty generation in the two regions we arrived in the last two chapters at what is in some respects the whole raison d'etre of this entire work, namely to identify the poor and the extent of poverty in Western and Eastern UP.

Commonsense and theory both dictated that the poor would be concentrated amongst those who were either landless, or had very small and often tenanted, holdings. Accordingly, it was these two groups who formed the subject matter of Chapter 8. Using the data contained in the 25th Round of the National Sample Survey we set out to identify the specific attributes of poor households.

Landless wage-earners in both regions depended overwhelmingly upon agricultural labour for a livelihood. In both Western and Eastern UP, agricultural labour was also the most important subsidiary activity of small cultivators. Indeed, in Eastern UP where many holdings were very small and not capable of supporting a family, agricultural labour on the farms of others took up more time than did working on their own farms.

Concentrating in the first instance on the agricultural labour population of each region it was clear that they were composed differently, and subject to different production relationships. In the Western Region we identified a heterogeneous group whose members included a large class of landless wage-labourers who engaged in non-agricultural as well as agricultural labour. Within this group of landless labourers also existed a class, composed mostly of older men, who combined self-employment in the village with agricultural wage labour. A significant proportion of the agricultural labourer population was also drawn from households who possessed some land and who combined cultivation of their own holdings with work on the farms of others. These landed labourers were a varied group, comprising a

majority with holdings below one acre who entered the labour market out of necessity, alongside a class of younger men from more substantial holdings.

In the Western Region the poor small cultivator households did not operate such tiny holdings as did their cohorts in the East, where many holdings were not large enough to generate sufficient income for subsistence. At the same time landless households in Western UP had wider employment opportunities in both the agricultural and non-agricultural sectors, whereas in the Eastern Region with its poorly developed industrial and agricultural bases, such opportunities were much more limited. As a result there was very great competition among both small cultivators and the landless in Eastern UP for work in agriculture. This inevitably resulted in high levels of unemployment and underemployment in the region, and wages which were considerably lower than those in the West.

This all took place within a set of production relationships which differed between the regions. In the West, a relatively high level of agricultural investment, particularly in irrigation, and the use of the biological innovations of the Green Revolution, resulted in a prosperous agricultural environment for those with holdings large enough to benefit. At the same time it encouraged the resumption of leased-in land and the buying up of small holdings. Many holdings in the large and mid-sized groups were now being worked with a combination of family and hired labour which was increasingly biased towards the latter. As a result the demand for hired labour increased, particularly at the time of key agricultural operations such as sowing and harvesting. This led employers to find ways of ensuring their labour supplies during these crucial periods. They did this via a system of labour tying, which often involved the

interlinkage of land, labour and credit relations. However, far from being semi-feudal, this derived from the need for hired labour of the emergent capitalist class and at the same time limited the ability of the growing class of landless wage-earners to organize themselves effectively in the face of rising demand.

By contrast, in the Eastern Region, not only was agriculture relatively backward, investment low, and labour over-abundant, but production relations were much closer to a semi-feudal model. This again implied an interlinkage of land, labour and credit relations, but for quite different reasons than in the West. In Eastern UP such interlinkages were the means by which the employer/landlord class siphoned off the agricultural surplus. As we have seen, the extent to which this was reinvested back into agriculture was limited in the region. At the same time, extreme competition for land and work, on even the most onerous terms, rendered the vast class of petty-landholders-cum-agricultural labourers largely submissive and incapable of concerted action.

The results for the poor of each region differed somewhat. To start with, it is apparent that in the Western Region neither the small cultivator population nor the wage-earner population was as poor as its cohort in the Eastern Region. Whether we looked at incomes, assets, household expenditure, or per capita consumption levels, the depth of poverty was greater in the East.

It was also clear that the poor was a much more homogeneous group in the Eastern Regions with an overall lower level of living and less inequality among them than in the West. Both small cultivators and wage-earners in the region were overwhelmingly dependent upon agricultural labour for a livelihood in the region. By contrast, in the West, small cultivators were able to obtain a larger percentage of

their income from their holdings, and were therefore not as dependent on agricultural labour to supplement this income. At the same time, the wage-earner population of the Western Region was composed of a much more diversified group of households than in the Eastern Region, and contained within it a large group whose link with agriculture was tenuous. Inequalities among the wage-earner population of the Western Region were wider than for any other group.

In the Eastern Region there was a more homogeneous agricultural labourer population. Over 90% of holdings in the NSS sample of small cultivators were below one acre, and more than 70% below half an acre. As a result, small cultivators spent more time working on the farms of others as wage labourers than in cultivating their own holdings. Many of these cultivators leased in land on various forms of informal and unrecorded contracts, leaving them very vulnerable to exploitation by employer/landlords.

Landless wage-earner households were unable to obtain substantially more farm work than small cultivators, and in the absence of non-agricultural alternatives spent much time unemployed. This particularly applied to landless women workers, who were the most disadvantaged of the labouring population.

It was quite clear that for both small cultivator and wage earner households the average level of incomes was lower in the Eastern Region than in the West. The reason for this was the bias towards the bottom end of the distribution for both small cultivators and wage earners in the Eastern Region. One might say that the "poor were poorer" there. Why should this be? With regard to small cultivators the explanation is firstly that small holdings were even smaller and less able to generate an income; they were subject to exploitative semi-feudal production relationships; opportunities for

agricultural and non-agricultural employment were more limited so there was a high rate of under and unemployment; and wages were lower - particularly for women who comprised a larger proportion of the wage-earner population in Eastern UP than they did in the West. In addition, for wage earners, there were also far fewer opportunities for earning a living from alternative sources - such as livestock and garden produce in the Eastern Region as compared to the West.

There is also the interesting point that not only were the poor poorer in the East, but there was less inequality among them than was the case in the Western Region. In the East there was a much closer confluence between the small cultivator population and the wage-earner population - they were all fundamentally competing for work as low paid agricultural wage labourers.

However, there is one fact which stood out about the poor in Eastern UP that was by no means so marked as in the West, and that was the proportion of women, particularly sole-breadwinners that it contained.

All these factors had their roots in the different modes of productions and class structures in the two regions. The more capitalist agriculture of Western UP, with its higher productivity, progressive increases in the organic composition of capital, its more differentiated class structure and greater use of hired wage labour, provided a different background against which to view the poor than the situation in the East. In the Western Region, the processes of agricultural growth threw up new mechanisms of poverty generation. The class structure was all the time evolving, with rich and capitalist farmers progressively increasing their economic dominance in the countryside. Share-cropping, although widespread, was modified in the face of progressive agriculture, and became an

important means by which these farmers secured supplies of labour via the interlinkage of land, labour and credit relationships. Although in some respect this represented an exploitative and repressive production relationship, it also provided the small cultivator with a dual source of income, both from cultivation of the share-cropped plot, and from wage labour on his landlord's farm. There was considerable evidence that Bhaduri's theory whereby the landholding structure stabilises, with a class of small cultivators co-existing alongside a class of rich and capitalist farmers, was the case in Western UP. The higher wages generated in part as a result of the enhanced labour demands resulting from the introduction of the High Yielding Varieties Programme were significant in this process. Extreme poverty amongst the small-cultivator population of the region, was therefore largely confined to those unable to obtain sufficient off-farm employment to fill the gap between their subsistence needs and income generated on their holdings.

The class of landless wage-earners in the region was also in part the product of economic growth, and the progressive differentiation of the peasantry in the region. It was a heterogeneous mixture of dispossessed former small cultivators, previous village artisans, members of cultivating families who entered the wage-labour force out of choice, and women. As such there were very wide variations in the levels of incomes among this group, with the poorest being found amongst those who spent the most time unemployed, and had the fewest alternative means of income.

In the Eastern Region, the backward nature of agriculture, with low productivity, and levels of investment, combined with predominantly semi-feudal production relationships contributed towards producing a massive class of impoverished small

cultivators/agricultural labourers. In this respect there was much less differentiation than in the West. It is hypothesised that Bhaduri's mechanism of land alienation via the debt mechanism was partially responsible for producing this situation. At the same time the extreme population density and lack of non-agricultural employment produced an under- and unemployment problem of enormous magnitude, and thus contributed to the depth and extent of poverty in the region.

5. THE POVERTY LINE

In the final chapter we set about assessing the proportion of the population in each region living in poverty. To do this we used two techniques, firstly we assessed the extent of undernourishment, and secondly, used the conventional poverty line of Rs. 15 per capita in 1960-61 prices to bring the study full circle and ask what proportions of the population could actually be defined as living in poverty on the basis of this conventional criteria. In order to produce comparable figures for the two regions we analysed a large body of raw data for the consumption of foodstuffs and other items, a process which necessitated creating index numbers whereby differences in prices between the two regions could be taken account of.

For consumption of foodstuffs, we found that in the Western Region while no group consumed less than the physiological minimum of 2,200 calories per capita per day, the agricultural labourers and poor peasants who cultivated holdings of up to 2.25 acres had the lowest calorie intake at about 3,000 per capita per day. For the Eastern Region we found calorie intakes for all groups to be considerably below the Western levels. Only non-agriculturists consumed less than the recommended physiological minimum, but the poorest cultivators and

agricultural labourers with less than one acre of land consumed very little above it at 2,273 calories per capita per day. Although strictly speaking adequate, diets such as this which are so near the physiological minimum limits, give little leeway for fluctuations. Any depression of food intake, say as a result of seasonal fluctuations in grain supplies, would result in the total intake of food falling below the critical limit and thus in undernourishment. This is particularly important for children, in whom it can result in permanent physical damage or mental retardation. The scale of the problem in the Eastern Region becomes apparent when we remember that including the landless in the under one acre group, we are talking about nearly a quarter of the entire agricultural population of Eastern UP!

When we came to look at the proportion of the agricultural population of each region subsisting on a level of consumption expenditure below the Rs. 15 per capita per month "poverty line" we found that in the Western Region, only the less than 1.0 acre group actually fell below this level. But including the class of landless, this amounted to nearly 35% of the total rural population of the region. The size class between 1.0 and 2.25 acres was only very little above the minimum at Rs. 15.5 per capita per month. The figures for Eastern UP reinforced our findings in Chapter 8, that the poor were poorer in the Eastern Region. Not only did all the households with holdings up to 6.25 acres have consumption less than Rs. 15 per capita per month, but the absolute values were considerably below those in the Western Region. According to the National Sample Survey 26th Round, in 1971-72 more than 70% of the population of Eastern UP were either landless or operate holdings up to 5.0 acres. If our consumption data is correct, this implies that even on a

conservative estimate, twice as many people were living in poverty in Eastern UP as in the West!

What does the future hold for the poor in Western and Eastern UP? Our study was largely confined to the early 1970's, but much has happened since. In the Western Region the Green Revolution has now worked its way through the system. The area under wheat was extended to a larger and larger area, and although wheat yields eventually reached a plateau, the high yielding varieties programme was successfully applied to a wider range of crops. The class of rich farmers became progressively more capitalist, relying increasingly upon hired labour and progressively substituting capital for livestock and labour in production. They continued to enhance their economic and political position in the countryside and, indeed, the support of the rich farmers of Western UP was vital to the successful election of the Janata Party Government at National level. Although the proportion of the population who are landless in the Region has continued to increase, it continued to enjoy the high wages engendered by the Green Revolution. At the same time there has been no great evidence of a polarisation between a class of rich and capitalist farmers and a class of landless, predicted by classical Marxist theory, for the middle peasantry has exhibited considerable stability, with the landholding structure in 1981 little changed from that of 1971.

In the Eastern Region irrigation has been extended and the new technology and associated package of practices has been adopted on a progressively widening scale although output and productivity has not caught up with that in the West. This has taken place against a background of production relationships in the Eastern Region that have remained fundamentally unaltered. It is our belief that even in

1990, the agricultural economy of Eastern UP is essentially semi-feudal - landlordism and tenancy is still rife, and the landholding structure is still biased towards an enormous class of petty cultivating poor peasants. The proportion of agricultural labourers in the region has increased, as population pressure and re-possession of tenanted holdings by landlords has forced more and more poor peasants into the ranks of the landless labourer population. As long as production relationships remain semi-feudal, the problem of poverty in the region will remain intractable, and Eastern UP will continue to be described as one of the poorest regions of India.

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VALUE CHARTS OF NON BASIC COMMODITIES

APPENDIX 1

QUANTITY CHARTS - BASIC FOODSTUFFS.

Table 1: Households with Holdings of 1.00 acre or less

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.22339	0.13917
Rice	0.07818	0.18953
Total: Superior Foodgrains	0.30157	0.3287
Gram	0.00145	0.00431
Barley	0.00501	0.06719
Jowar	0.01169	0.00864
Bajra	0.06481	0.02669
Maize	0.10074	0.03895
Gojai (Wheat & Barley)	0.01145	0.02530
Gochana (Wheat & Gram)	0.24597	0.00645
Bejhar (Barley & Gram)	0.03151	0.03141
Total: Inferior Foodrains	0.7742	0.53764
Arhar	0.01916	0.04080
Urd	0.01803	0.00615
Masoor	0.00597	0.00175
Other Pulses	0.00215	0.04434
Total: Pulses	0.81951	0.04434
Vegetables*	0.12235	0.11467
Milk	0.05649	0.01440
Deshi Ghee	0.00231	0.00042
Sugar & Khansari	0.00706	0.00118
Total: Other Foods	1.00772	0.76135

* The estimate for consumption of vegetables in both regions is for all categories of agriculturist households taken together.

Table 2: Households with Holdings of 1.0-2.25 acres

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.24988	0.16804
Rice	0.07298	0.19708
Total: Superior Foodgrains	0.32286	0.36512
Gram	0.00233	0.00809
Barley	0.00221	0.07560
Jowar	0.01297	0.01275
Bajra	0.08706	0.02791
Maize	0.10328	0.03582
Gojai (Wheat & Barley)	0.01052	0.03202
Gochana (Wheat & Gram)	0.18477	0.00353
Bejhar (Barley & Gram)	0.02389	0.02346
Total: Inferior Foodrains	0.74989	0.58430
Arhar	0.02319	0.04954
Urd	0.01971	0.00581
Masoor	0.00639	0.00138
Other Pulses	0.00262	0.02042
Total: Pulses	0.80180	0.66145
Vegetables(1)	0.12235	0.11467
Milk(2)	0.07679	0.02688
Deshi Ghee	0.00410	0.00095
Sugar & Khansari	0.00607	0.00140
Total: Other Foods	1.01111	0.80535

(1) This estimate not fitted so an average has been taken of the less than 1.0 acre category and the 2.25-6.25 acre categories for the Eastern Region only.

(2) An average estimate for all agriculturists category only is included in the original lists for both regions.

Table 3: Households with Holdings of between 2.25 and 6.25 acres

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.21717	0.16964
Rice	0.09054	0.17810
Total: Superior Foodgrains	0.36231	0.34774
Gram	0.00190	0.00533
Barley	0.00732	0.06843
Jowar	0.02040	0.00943
Bajra	0.07822<1>	0.04151
Maize	0.08168	0.04417
Gojai (Wheat & Barley)	0.00560	0.02919
Gochana (Wheat & Gram)	0.20467	0.00401
Bejhar (Barley & Gram)	0.02538	0.02201
Total: Inferior Foodrains	0.78748	0.57182
Arhar	0.02036	0.06279
Urd	0.01816	0.00640
Masoor	0.00589	0.00171
Other Pulses	0.00292	0.01786
Total: Pulses	0.83481	0.66058
Vegetables*	0.12235	0.11467
Milk	0.09538	0.03937
Deshi Ghee	0.00481	0.00130<2>
Sugar & Khandsari	0.01013	0.00232
Total: Other Foods	1.06748	0.81824

<1> Figure for Bajra for this size class not available, so an average has been taken of the figures for the size below and size above.

<2> The published total of 0.00530 cannot possibly be correct, as it is not only quite out of line with all the other figures of consumption of this item in this region, but also, converted into price per kilogram, gives the absurd figure of Rs. 2.5 per kg. However, a much more sensible price of Rs. 10.5 per kg. is achieved if the quantity is taken to be 0.00130, as we have done.

Table 4: Households with Holdings of between 6.25 and 15 acres

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.28696	0.21550
Rice	0.07031	0.18744
Total: Superior Foodgrains	0.35727	0.40294
Gram	0.00214	0.00915
Barley	0.00150	0.5457
Jowar	0.01027	0.00593
Bajra	0.06938	0.02784
Maize	0.08154	0.02906
Gojai (Wheat & Barley)	0.00598	0.04811
Gochana (Wheat & Gram)	0.26617	0.00448
Bejhar (Barley & Gram)	0.01905	0.02313
Total: Inferior Foodrains	0.81330	0.60521
Arhar	0.01915	0.06770
Urd	0.02092	0.00784
Masoor	0.00455	0.00165
Other Pulses	0.00335	0.01520
Total: Pulses	0.86127	0.69760
Vegetables*	0.12235	0.11467
Milk	0.13446	0.05859
Deshi Ghee	0.00630	0.00195
Sugar & Khandsari	0.01148	0.00389
Total: Other Foods	1.13586	0.87669

Table 5: Households with Holdings of between 15 and 30 acres

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.37626	0.19497
Rice	0.06567	0.24303
Total: Superior Foodgrains	0.44193	0.43800
Gram	0.00273	0.00958
Barley	0.00332	0.03927
Jowar	0.00355	0.00739
Bajra	0.05488	0.02323
Maize	0.09970	0.03098
Gojai (Wheat & Barley)	0.01037	0.04167
Gochana (Wheat & Gram)	0.27251	0.00648
Bejhar (Barley & Gram)	0.01528	0.01831
Total: Inferior Foodrains	0.90427	0.61491
Arhar	0.09153	0.07523
Urd	0.02635	0.00577
Masoor	0.00430	0.00455
Other Pulses	0.00396	0.01147
Total: Pulses	0.95418	0.71193
Vegetables*	0.12235	0.11467
Milk	0.18801	0.07632
Deshi Ghee	0.00939	0.00268
Sugar & Khandsari	0.00631	0.00504
Total: Other Foods	1.28024	0.91064

Table 6: Households with Holdings of above 30 acres

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.39072	0.20909
Rice	0.04455	0.21115
Total: Superior Foodgrains	0.43527	0.42024
Gram	0.00474	0.01168
Barley	0.00789	0.02462
Jowar	0.00194	0.00317
Bajra	0.04019	0.01612
Maize	0.04975	0.01368
Gojai (Wheat & Barley)	0.00258	0.04179
Gochana (Wheat & Gram)	0.26987	0.00816
Bejhar (Barley & Gram)	0.01192	0.02635
Total: Inferior Foodrains	0.82415	0.56581
Arhar	0.01916	0.65120
Urd	0.02727	0.00397
Masoor	0.00340	0.00570
Other Pulses	0.00414	0.00852
Total: Pulses	0.87812	0.64912
Vegetables*	0.12235	0.11467
Milk	0.17694	0.09208
Deshi Ghee	0.00910	0.00297
Sugar & Khandsari	0.01813	0.01947
Total: Other Foods	1.20464	0.87831

Table 7: Non-Agriculturists

	Western Region	Eastern Region
	Kg.	Kg.
Wheat & Wheat Products	0.39773	0.15459
Rice	0.06317	0.14386
Total: Superior Foodgrains	0.46090	0.29845
Gram	0.00148	0.00280
Barley	0.00094	0.04476
Jowar	0.00554	0.00594
Bajra	0.06511	0.04496
Maize	0.22334	0.03575
Gojai (Wheat & Barley)	0.00422	0.02600
Gochana (Wheat & Gram)	0.15796	0.00203
Bejhar (Barley & Gram)	0.04420	0.03130
Total: Inferior Foodrains	0.96369	0.49199
Arhar	0.01361	0.03592
Urd	0.02667	0.00468
Masoor	0.00921	0.00274
Other Pulses	0.00462	0.01153
Total: Pulses	1.01780	0.54686
Vegetables*	0.12235	0.11467
Milk	0.05779	0.02719
Deshi Ghee	0.00694	0.00065
Sugar & Khandsari	0.00997	0.00286
Total: Other Foods	1.21485	0.69223

APPENDIX 2

1. NUTRITIONAL EQUIVALENT CHART

2. PER CAPITA PER DAY CONSUMPTION OF PRINCIPAL FOOD GROUPS IN CALORIFIC EQUIVALENTS

3. PROTEIN CHART FOR LESS THAN 1 ACRE SIZE CLASS

4. PROTEIN CHART FOR NON-AGRICULTURISTS

Table 8:
Protein and Calorie Content of Foods (taken from ICMR 1963 Special Report)

		Per gram of edible portion	
		Protein grams	Calories grams
1.	Wheat	0.128	3.46
2.	Rice	0.075	3.45
3.	Gram (chickpeas)	0.17	3.6
4.	Barley	0.115	3.36
5.	Jowar	0.10	3.49
6.	Bajra (millet)	0.073	3.28
7.	Maize	0.11	3.42
8.	Gojai (wheat & barley)	0.12	3.41
9.	Gochana (wheat & gram)	0.149	3.53
10.	Bejhar (barley & gram)	0.143	3.48
11.	Arhar (red gram)	0.223	3.55
12.	Urd	0.24	3.47
13.	Masoor	0.25	3.41
14.	Other pulses	0.24	3.4
15.	Vegetables (onion)	0.012	0.49
16.	Milk (cow's)	0.32	0.67
17.	Deshi ghee	-	8.18
18.	Sugar & khandsari	0.004	3.83

Table 9:
Per Capita per day consumption of calories and proteins
(Foodgrains and pulses converted at the rate of 3.5 calories per gram of edibl portion.)

	Western Region calories	Eastern Region calories
Below 1 acre		
Foodgrains & pulses	2,860	2,200
Vegetables	60	56
Milk	38	10
Ghee	20	3
Sugar	26	4
Total	3,004	2,273
1-2.25 acres		
Foodgrains & pulses	2,920	2,312
Vegetables	60	56
Milk	50	18
Ghee	33	7
Sugar	23	5
Total	2,966	2,403
2.25-6.25 acres		
Foodgrains & pulses	2,920	2,312
Vegetables	60	56
Milk	64	26
Ghee	40	11
Sugar	39	9
Total	3,123	2,414
6.25-15 acres		
Foodgrains & pulses	3,015	2,440
Vegetables	60	56
Milk	90	39
Ghee	51	16
Sugar	44	15
Total	3,260	2,566
15-30 acres		
Foodgrains & pulses	3,340	2,500
Vegetables	60	56
Milk	126	51
Ghee	77	22
Sugar	24	19
Total	3,627	2,648
Above 30 acres		
Foodgrains & pulses	3,070	2,270
Vegetables	60	56
Milk	118	61
Ghee	74	24
Sugar	61	66
Total	3,383	2,477

Non-agriculturists		
Foodgrains & pulses	3,560	1,910
Vegetables	60	56
Milk	125	51
Ghee	77	22
Sugar	21	17
Total	3,844	2,056

Table 10:
Protein content of food consumed by less than 1 acre group

		Western grams protein	Eastern grams protein
1.	Wheat	28.6	17.8
2.	Rice	5.8	14.2
3.	Barley	0.6	7.7
5.	Jowar	1.1	0.8
6.	Bajra (millet)	4.7	1.9
7.	Maize	11.0	4.3
8.	Goja (wheat & barley)	1.4	3.0
9.	Gochana (wheat & gram)	36.6	1.0
10.	Bejhar (barley & gram)	4.5	4.5
11.	Arhar	4.3	9.0
12.	Urd	4.3	1.5
13.	Masoor	1.5	0.4
14.	Other pulses	0.5	10.6
15.	Vegetables	1.5	1.4
16.	Milk	18.0	4.6
17.	Deshi ghee	-	-
18.	Sugar & khandsari	-	-
	Total	106.6	78.17

Table 11:

In terms of "reference protein", i.e. protein having a net utilisation of 100% (NPU) converting dietary protein into reference protein, animal protein in the diet (milk) is assumed to have an NPU of 80 and vegetable protein of 50.

Using ICMR protein and calorie requirements, the "reference man" requires 2,800 k.cals. daily and 30 grams. of reference protein.

	Reference Protein	
	Western Region	Eastern Region
	grams	grams
Animal reference protein	14.4	3.7
Vegetable reference protein	53.3	39.0
TOTAL	67.7	42.7

APPENDIX 3

VALUE CHARTS - BASIC FOODSTUFFs

Per Capita per day Consumption on Food Only (Value [Rs.] per day)

Table 12: Households with holdings of less than 1.0 acre

		Western	Eastern
		Rs.	Rs.
1.	Wheat & Wheat Products	0.21235	0.13952
2.	Rice & Rice Products	0.07375	0.22475
3.	Gram	0.00165	0.00419
4.	Barley	0.00336	0.06157
5.	Jowar	0.00734	0.00636
6.	Bajra	0.04544	0.02054
7.	Maize	0.06803	0.03080
8.	Gojai	0.00832	0.02187
9.	Gochana	0.03078	0.00219
10.	Bejhar	0.02378	0.02328
11.	Arhar	0.01755	0.05364
12.	Urd	0.02338	0.00607
13.	Masoor	0.00751	0.00197
14.	Other Pulses	0.00275	0.04239
15.	Vegetables	0.03927	0.04547
16.	Milk	0.05242	0.01459
17.	Deshi Ghee	0.02645	0.00344
18.	Sugar & Khandsari	0.01280	0.00134
	TOTAL	0.65693	0.70398
19.	*Mustard Oil	0.03020	0.03687
20.	Other Milk Products	0.00361	0.00546
21.	Eggs, Meat, Fish, etc.	0.01860	0.00119
22.	Vanaspati Ghee		

Notes

Items 19 to 22 have not been included in the totals as the raw data does not include the quantities consumed in each region. This makes it impossible to calculate their prices.

Table 13: Households with holdings between 1.0 and 2.25 acres

		Western	Eastern
		Rs.	Rs.
1.	Wheat and Wheat Products	0.20680	0.15457
2.	Rice	0.07221	0.21843
3.	Gram	0.00294	0.00666
4.	Barley	0.00129	0.05417
5.	Jowar	0.00865	0.01006
6.	Bajra	0.06118	0.02312
7.	Maize	0.06971	0.02745
8.	Gojai	0.00778	0.02668
9.	Gochana	0.04573	0.00321
10.	Bejhar	0.01596	0.01823
11.	Arhar	0.03243	0.05364
12.	Urd	0.02725	0.00878
13.	Masoor	0.01165	0.00155
14.	Other Pulses	0.00367	0.01852
15.	Vegetables	0.04465	0.04529
16.	Milk	0.07809	0.02690
17.	Deshi Ghee	0.02645	0.00781
18.	Sugar & Khandsari	0.01161	0.00220

Table 14: Households with holdings between 2.25 and 6.25 acres

		Western	Eastern
		Rs.	Rs.
1.	Wheat	0.23053	0.16174
2.	Rice	0.09286	0.21115
3.	Gram	0.00234	0.00575
4.	Barley	0.00449	0.05074
5.	Jowar	0.01373	0.00666
6.	Bajra	0.05060	0.03325
7.	Maize	0.05302	0.05001
8.	Gojai	0.00422	0.02414
9.	Gochana	0.03879	0.00332
10.	Bejhar	0.01902	0.02210
11.	Arhar	0.02617	0.03005
12.	Urd	0.02358	0.00716
13.	Masoor	0.00726	0.00168
14.	Other Pulses	0.00375	0.01548
15.	Vegetables	0.05682	0.04712
16.	Milk	0.09688	0.03954
17.	Deshi Ghee	0.05453	0.01360
18.	Sugar & Khandsari	0.01867	0.00423

Table 15: Households with holdings between 6.25 and 15.0 acres.

		Western	Eastern
		Rs.	Rs.
1.	Wheat	0.25932	0.25213
2.	Rice	0.07029	0.23959
3.	Gram	0.00255	0.00958
4.	Barley	0.00099	0.04285
5.	Jowar	0.00620	0.00465
6.	Bajra	0.04750	0.02225
7.	Maize	0.05442	0.02010
8.	Gojai	0.00544	0.03684
9.	Gochana	0.04770	0.00394
10.	Bejhar	0.01405	0.01899
11.	Arhar	0.02499	0.09062
12.	Urd	0.02884	0.00786
13.	Masoor	0.00568	0.00172
14.	Other Pulses	0.00420	0.01440
15.	Vegetables	0.04819	0.05028
16.	Milk	0.12775	0.06369
17.	Deshi Ghee	0.07145	0.02051
18.	Sugar & Khandsari	0.02022	0.00689

Table 16: Households with holdings between 15.0 and 30.0 acres

		Western	Eastern
		Rs.	Rs.
1.	Wheat	0.33811	0.21771
2.	Rice	0.07037	0.29111
3.	Gram	0.00351	0.00991
4.	Barley	0.00223	0.03145
5.	Jowar	0.00235	0.00606
6.	Bajra	0.03904	0.01721
7.	Maize	0.04837	0.02123
8.	Gojai	0.00885	0.03637
9.	Gochana	0.04649	0.00601
10.	Bejhar	0.00952	0.01546
11.	Arhar	0.02008	0.09786
12.	Urd	0.03666	0.00683
13.	Masoor	0.00546	0.00227
14.	Other Pulses	0.00531	0.00991
15.	Vegetables	0.05073	0.05798
16.	Milk	0.18887	0.08006
17.	Deshi Ghee	0.10777	0.02871
18.	Sugar & Khandsari	0.03053	0.01014

Table 17: Households with holdings above 30.0 acre

		Western	Eastern
		Rs.	Rs.
1.	Wheat	0.36395	0.20887
2.	Rice	0.05245	0.24608
3.	Gram	0.00539	0.01235
4.	Barley	0.00450	0.01946
5.	Jowar	0.00108	0.00209
6.	Bajra	0.02915	0.01290
7.	Maize	0.03280	0.00873
8.	Gojai	0.00186	0.03646
9.	Gochana	0.05984	0.00776
10.	Bejhar	0.01071	0.02308
11.	Arhar	0.01383	0.08704
12.	Urd	0.03569	0.00454
13.	Masoor	0.00455	0.00597
14.	Other Pulsres	0.00546	0.00782
15.	Vegetables	0.05044	0.06804
16.	Milk	0.17244	0.08267
17.	Deshi Ghee	0.10813	0.02765
18.	Sugar & Khandsari	0.03390	0.01731

Table 18: Non-Agriculturist Households

		Western	Eastern
		Rs.	Rs.
1.	Wheat	0.35913	0.14340
2.	Rice	0.06637	0.17396
3.	Gram	0.00185	0.00292
4.	Barley	0.00063	0.03339
5.	Jowar	0.00359	0.00424
6.	Bajra	0.04376	0.03694
7.	Maize	0.19802	0.02479
8.	Gojai	0.00280	0.01850
9.	Gochana	0.07439	0.00251
10.	Bejhar	0.03147	0.02365
11.	Arhar	0.01810	0.05846
12.	Urd	0.03363	0.00547
13.	Masoor	0.01161	0.00321
14.	Other Pulses	0.00642	0.01056
15.	Vegetables	0.07448	0.04996
16.	Milk	0.11217	0.03615
17.	Deshi Ghee	0.05871	0.00670
18.	Sugar & Khandsari	0.01715	0.00529

APPENDIX 4

1. Value of Basic Commodities in Western Prices
2. Value of Basic Commodities in Eastern Prices
3. Calculations for Fisher Indices
4. Fisher Price Indices for the Western and Eastern Regions
5. Standardised Prices
6. Price per Kg. of Basic Commodities - Charts
7. Western Quantities in Eastern Prices
8. Eastern Quantities in Western Prices

Table 19:
Value of Per Capita Per Day Consumption on Selected Food Items in Western Prices

acres	Western Region Rs.	Index	Eastern Region Rs.	Index
Less than 1.0	0.65693	106.7	0.61572	100
1.0-2.25	0.72804	106.7	0.68278	100
2.25-6.25	0.79726	113.5	0.70251	100
6.25-15.0	0.83978	106.9	0.78570	100
15.0-30.0	1.01425	118.3	0.85747	100
Above 30.0	0.98617	119.0	0.82854	100
non-agriculturists	1.11428	174.9	0.63716	100

Value of per capita food consumption per month in Western Prices
(per 30 days)

acres	Western Region Rs.	Eastern Region Rs.
Less than 1.0	19.71	18.47
1.0-2.25	21.84	20.48
2.25-6.25	23.92	21.08
6.25-15.0	25.19	23.57
15.0-30.0	30.42	25.73
Above 30.0	29.58	24.86
Non-agriculturists	33.43	19.11

Value of per capita per day consumption on selected food items in Eastern Prices

acres	Western Region Rs.	Index	Eastern Region Rs.	Index
Less than 1.0	0.76201	108.2	0.70398	100
1-2.25	0.90296	127.7	0.70727	100
2.25-6.25	0.99628	136.9	0.72772	100
6.25-15.0	1.14449	126.2	0.90689	100
15.0-30.0	1.26423	133.6	0.94628	100
Above 30.0	1.18445	134.8	0.87882	100
Non-agriculturists	1.18006	184.4	0.64010	100

Value of per capita food consumption per month in Eastern Prices
(per 30 days)

acres	Western Region Rs.	Eastern Region Rs.
Less than 1.0	22.86	21.12
1.0-2.25	27.09	21.22
2.25-6.25	29.89	21.83
6.25-15.0	34.33	27.20
15.0-30.0	37.93	28.39
Above 30.0	35.53	26.36
Non-agriculturists	35.40	19.20

Calculations for Fisher Indices

$$\text{Index} = \frac{\sum p_c q_b}{\sum p_b q_b} \times \frac{\sum p_c q_c}{\sum p_b q_c}$$

i.e. let us call Western UP b and Eastern UP c.

therefore:

$$\frac{\sum \text{Eastern prices x Western quantities}}{\sum \text{Western prices x Western quantities}} \times \frac{\sum \text{Eastern prices x Eastern quantities}}{\sum \text{Western prices x Eastern quantities}}$$

Under 1.0 acre size class (food only)

$$\frac{0.76210}{0.65693} \times \frac{0.70398}{0.61572}$$

$\therefore \quad \sqrt{1.160 \times 1.1433}$

$\therefore \quad \sqrt{1.3264}$

$\therefore \quad 1.1512 \times 100 = \underline{115.2}$

reversing the subscripts, i.e. Western UP = c and Eastern UP = b

$$\frac{\sum \text{Western prices x Eastern quantities}}{\sum \text{Eastern prices x Eastern quantities}} \times \frac{\sum \text{Western prices x Western quantities}}{\sum \text{Eastern prices x Western quantities}}$$

$$\frac{0.61572}{0.70398} \times \frac{0.65693}{0.7621}$$

$\therefore \quad \sqrt{0.8746 \times 0.86199}$

$\therefore \quad \sqrt{0.75398}$

$\therefore \quad 0.868 \quad 100 = \underline{86.8}$

1.0-2.25 acres - calculations for Fisher Index

Prices: 0.90296 0.70727

x

0.72804 0.68278

∴ √1.2402 x 1.0358

∴ √1.2847

∴ 1.1334 x 100 = 113.3

Prices, reversing the subscripts:

0.68278 0.72804

x

0.70727 0.90294

∴ √0.96538 x 0.806299

∴ √0.77839

∴ 0.883 x 100 = 88.2

2.25-6.25 acres - calculations for Fisher Index

Prices: 0.99628 0.72772

x

0.79726 0.70251

∴ √1.24960 x 1.03588

∴ √1.29

∴ 1.1377 x100 = 113.8

Prices, reversing the subscripts:

0.70250 0.79726

x

0.72772 0.99628

∴ √0.9653 x 0.8002

∴ √0.7725

∴ 0.8789 x 100 = x 87.9

6.25-15.0 acres - calculations for Fisher Price Indices

1.14449 0.90689

x

0.83978 0.78570

$\therefore$ $\sqrt{1.3628 \times 1.1542}$

$\therefore$ $\sqrt{1.5373}$

$\therefore$ $1.254 \times 100 = \underline{125.4}$

reversing subscripts:

0.78570 0.83978

x

0.90689 1.14449

$\therefore$ $\sqrt{0.86636 \times 0.73376}$

$\therefore$ $\sqrt{0.6357}$

$\therefore$ $0.797 \times 100 = \underline{79.7}$

15.0-30.0 acres - calculations for Fisher Price Indices

1.26423 0.94628

x

1.01425 0.85747

$\therefore$ $\sqrt{1.24646 \times 1.10357}$

$\therefore$ $\sqrt{1.3755}$

$\therefore$ $1.1728 \times 100 = \underline{117.3}$

reversing subscripts:

0.85747 1.01425

x

0.94628 1.26423

$\therefore$ $\sqrt{0.906 \times 0.80226}$

$\therefore$ $\sqrt{0.7269}$

$\therefore$ $0.8526 \times 100 = \underline{85.3}$

Above 30.0 acres - calculations for Fisher price indices

1.18445 0.87882

x

10.98617 0.82854

∴ $\sqrt{1.20 \times 1.06}$

∴ $\sqrt{1.27}$

∴ $1.1286 \times 100 = \underline{112.9}$

reversing subscripts:

0.82854 0.98617

x

0.87882 1.18445

∴ $\sqrt{0.9427 \times 0.8325}$

∴ $\sqrt{0.78}$

∴ $0.8859 \times 100 = \underline{88.6}$

Non-agriculturists - calculations for Fisher price indices

1.18006 0.64010

x

1.11428 0.63716

∴ $\sqrt{1.05903 \times 1.0046}$

∴ $\sqrt{1.06}$

∴ $1.0314 \times 100 = \underline{103.1}$

reversing subscripts:

0.63716 1.11428

x

0.64010 1.18006

∴ $\sqrt{0.995 \times 0.944}$

∴ $\sqrt{0.9399}$

∴ $96.94 \times 100 = \underline{97.0}$

Table 20: Fisher Price Indices

Size Class acres	Western weights Laspeyres	Eastern weights Paasch	Western Region Western prices	Western Region Inflated prices	Eastern Region Eastern prices	Eastern Region Deflated prices
			Rs.	Rs.	Rs.	Rs.
Less than 1.0	115.2	86.8	0.65693	0.75683	0.70398	0.61109
1.0-2.25	113.3	88.2	0.72804	0.82544	0.70727	0.62424
2.25-6.25	113.8	87.9	0.79726	0.90700	0.72772	0.63947
6.25-15.0	125.4	79.7	0.83978	1.05367	0.90689	0.72319
15.0-30.0	117.3	85.3	1.01425	1.18903	0.94628	0.80671
Above 30.0	112.9	88.6	0.98617	1.11130	0.87882	0.77840
Non-agrics.	103.1	96.9	1.11428	1.14992	0.64010	0.62085

Standardised Prices

By halving the difference between the value of consumption in regional prices and the value as calculated by the Fisher index, and adding it to the value of consumption in regional prices, it should be possible to obtain a standard price whereby the consumption of each region is rendered comparable.

Table 21: Value of basic consumption per month in standard prices

	Western Rs.	Eastern Rs.
Less than 1.0	21.2	19.7
1.0-2.25	23.3	20.0
2.25-6.25	25.6	20.5
6.25-15.0	28.4	24.4
15.0-30.0	33.0	26.3
Above 30.0	31.5	24.9
Non-agriculturists	33.9	18.9

Table 22: Average price per kg. of basic foodstuffs, i.e. value ÷ kg.

	Western Rs.	Eastern Rs.
Less than 1.0	0.65	0.92
1.0-2.25	0.72	0.88
2.25-6.25	0.75	0.89
6.25-15.0	0.74	1.03
15.0-30.0	0.79	1.04
Above 30.0	0.82	1.00
Non-agriculturists	0.92	0.92

Table 23: Prices per kg. of principal items of food consumption for households of less than 1.0 acre

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat and wheat products	0.95058	1.00251
Rice and rice products	0.94334	1.18583
Gram	1.13793	0.97216
Barley	0.67066	0.91636
Jowar	0.62788	0.73611
Bajra	0.70113	0.76958
Maize	0.67530	0.79076
Gojai	0.72664	0.86443
Gochana	0.12514	0.33953
Bejhar	0.75468	0.74117
Arhar	0.91597	1.31471
Urd	1.29673	0.98699
Masoor	1.25796	1.12571
Other Pulses	1.27907	0.95602
Vegetables	0.32096	0.39653
Milk	0.92795	1.01319
Deshi Ghee	11.45022	8.19048
Sugar and Khandsari	1.81303	1.13559

Table 24: Prices per kg. of principal items of food consumption for households with holdings between 1 and 2.25 acres

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat and wheat products	0.82760	0.91984
Rice and rice products	0.98945	1.10833
Gram	1.26180	0.82324
Barley	0.58371	0.71653
Jowar	0.66692	0.78902
Bajra	0.70273	0.82838
Maize	0.67496	0.76633
Gojai	0.73954	0.83323
Gochana	0.24750	0.90935
Bejhar	0.66806	0.77707
Arhar	1.39802	1.08276
Urd	1.38255	1.51119
Masoor	1.82316	1.12319
Other Pulses	1.40076	0.90695
Vegetables	0.36494	0.39496
Milk	1.01693	1.00074
Deshi Ghee	6.45122	8.22105
Sugar and Khandsari	1.91269	1.57143

Table 25: Prices per kg. of principal items of food consumption for households with holdings between 2.25 and 6.25 acres

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat	0.84814	0.95343
Rice	1.02562	1.18557
Gram	1.23158	1.07870
Barley	0.61339	0.74149
Jowar	0.67304	0.70626
Bajra	0.64689	0.80101
Maize	0.64912	1.13222
Gojai	0.75358	0.82699
Gochana	0.18952	0.82793
Bejhar	0.74941	1.00409
Arhar	1.28536	0.47858
Urd	1.29846	1.11875
Masoor	1.23260	0.98246
Other Pulses	1.28424	0.86674
Vegetables	0.46441	0.41092
Milk	1.01573	1.00432
Deshi ghee	11.3368	10.4615
Sugar & khandsari	1.84304	1.82328

Table 26: Prices per kg. of principal items of food consumption for households with holdings between 6.25 and 15 acres

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat	0.90368	1.16998
Rice	0.99972	1.27822
Gram	1.19159	1.04699
Barley	0.66000	0.78523
Jowar	0.6037	0.78414
Bajra	0.68464	0.79921
Maize	0.66740	0.69167
Gojai	0.90970	0.76575
Gochana	0.17921	0.87946
Bejhar	0.73753	0.82101
Arhar	1.30496	1.33856
Urd	1.37859	1.00256
Masoor	1.24835	1.04242
Other Pulses	1.25373	0.94737
Vegetables	0.42025	0.43848
Milk	0.95010	1.08705
Deshi ghee	11.34127	10.57216
Sugar and khandsari	1.76132	1.77121

Table 27: Prices per kg. of principal items of food consumption for households with holdings between 15 and 30 acres

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat	0.89861	1.11663
Rice	1.07157	1.19784
Gram	1.28571	1.03445
Barley	0.67168	0.80087
Jowar	0.66197	0.82003
Bajra	0.71137	0.74085
Maize	0.48516	0.68528
Gojai	0.64599	0.87281
Gochana	0.17060	0.92747
Bejhar	0.62304	0.84435
Arhar	1.31242	1.30081
Urd	1.39127	1.18371
Masoor	1.26977	0.49890
Other Pulses	1.34091	0.86399
Vegetables	0.41463	0.50562
Milk	1.00457	1.04900
Deshi ghee	11.47711	10.71269
Sugar & khandsari	4.83835	2.01190

Table 28: Prices per kg. of principal items of food consumption for households with holdings above 30 acres

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat	0.93149	0.99894
Rice	1.17733	1.16543
Gram	1.13713	1.05736
Barley	0.57034	0.79041
Jowar	0.55670	0.65931
Bajra	0.72530	0.80025
Maize	0.65930	0.63816
Gujai	0.72093	0.87246
Gochana	0.22174	0.95098
Bejhar	0.89849	0.87590
Arhar	0.72182	1.33661
Urd	1.30876	1.14358
Masoor	1.33826	1.04737
Other Pulses	1.31884	0.91784
Vegetables	0.41226	0.59335
Milk	0.97457	0.89781
Deshi ghee	11.88242	9.30976
Sugar & khandsari	1.86983	0.88906

Table 29: Prices per kg. of principal items of food consumption for non-agriculturist households

	Western Region price per kg.	Eastern Region price per kg.
	Rs.	Rs.
Wheat	0.90295	0.92761
Rice	1.05066	1.20923
Gram	1.25000	1.04286
Barley	0.67021	0.74607
Jowar	0.64801	0.71380
Bajra	0.67209	0.82159
Maize	0.88663	0.69343
Gojai	0.66351	0.71154
Gochana	0.47094	1.23645
Bejhar	0.71199	0.75559
Arhar	1.32990	1.62751
Urd	1.26097	1.16880
Masoor	1.26058	1.17153
Other Pulses	1.38961	0.91587
Vegetables	0.60875	0.43568
Milk	1.94099	1.32953
Deshi ghee	8.45965	10.30769
Sugar & khandsari	1.72016	1.84965

Table 30: Eastern UP Consumption quantities at Western UP Prices

	Below 1.0 acre			1.0-2.25 acres		
	Rs.		Rs.	Rs.		Rs.
Wheat	0.13229			0.13905		
Rice	0.17879	Total	0.31108	0.19500	Total	0.33405
Gram	0.00949			0.01021		
Barley	0.04506			0.00441		
Jowar	0.00542			0.00850		
Bajra	0.01871			0.01961		
Maized	0.02630			0.02418		
Gojai	0.01838			0.02368		
Gochana	0.00081			0.00087		
Bejhar	0.02370	Total	0.45436	0.01567	Total	0.44118
Arhar	0.03737			0.06926		
Urd	0.00797			0.00803		
Masoor	0.00220			0.00252		
Other Pulses	0.05671	Total	0.55861	0.02860	Total	0.54954
Vegetables	0.03680			0.04185		
Milk	0.01336			0.02734		
Deshi ghee	0.00481			0.06129		
Sugar	0.00214	Total	0.61572	0.00268	Total	0.68278

	2.25-6.25 acres			6.25-15.0 acres		
	Rs.		Rs.	Rs.		Rs.
Wheat	0.14388			0.19473		
Rice	0.18266	Total	0.32654	0.18739	Total	0.38213
Gram	0.00656			0.01090		
Barley	0.04197			0.03602		
Jowar	0.00635			0.00357		
Bajra	0.02685			0.01906		
Maize	0.02867			0.0139		
Gojai	0.04376			0.02199		
Gochana	0.00080			0.00076		
Bejhar	0.01649	Total	0.47620	0.01706	Total	0.53271
Arhar	0.08071			0.08835		
Urd	0.00831			0.01081		
Masoor	0.00211			0.00206		
Other Pulses	0.02294	Total	0.59026	0.01906	Total	0.65299
Vegetables	0.05325			0.04819		
Milk	0.03998			0.05567		
Deshi ghee	0.01473			0.02200		
Sugar	0.00426	Total	0.70251	0.00685	Total	0.7857

	15.0-30.0 acres			Above 30 acres		
	Rs.		Rs.	Rs.		Rs.
Wheat	0.17520			0.19476		
Rice	0.26042	Total	0.43562	0.24859	Total	0.44336
Gram	0.01232			0.01328		
Barley	0.02638			0.01404		
Jowar	0.00489			0.00176		
Bajra	0.01653			0.01169		
Maize	0.01503			0.00902		
Gojai	0.02692			0.03013		
Gochana	0.00110			0.00181		
Bejhar	0.01141	Total	0.55020	0.02367	Total	0.54877
Arhar	0.09873			0.04700		
Urd	0.00803			0.00519		
Masoor	0.00578			0.00763		
Other Pulses	0.01538	Total	0.67812	0.01124	Total	0.61983
Vegetables	0.04754			0.04727		
Milk	0.07667			0.08974		
Deshi ghee	0.03076			0.03529		
Sugar	0.02438	Total	0.85747	0.03641	Total	0.82854

Non-Agriculturists

	Rs.		Rs.
Wheat	0.13595		
Rice	0.15115	Total	0.29073
Gram	0.0035		
Barley	0.02999		
Jowar	0.00385		
Bajra	0.03021		
Maize	0.03169		
Gojai	0.01725		
Gochana	0.00096		
Bejhar	0.02285	Total	0.43104
Arhar	0.04777		
Urd	0.00590		
Masoor	0.00345		
Other Pulses	0.01602	Total	0.50418
Vegetables	0.06980		
Milk	0.05277		
Deshi ghee	0.00549		
Sugar	0.00492	Total	0.63716

Table 31: Western UP Consumption quantities at Eastern UP Prices

	Below 1.0 acre			1.0-2.25 acres		
	Rs.		Rs.	Rs.		Rs.
Wheat	0.22395			0.22985		
Rice	0.09271	Total	0.3166	0.08089	Total	0.31074
Gram	0.00141			0.00192		
Barley	0.00459			0.00158		
Jowar	0.00861			0.01023		
Bajra	0.04988			0.09212		
Maize	0.07966			0.07915		
Gojai	0.00989			0.00877		
Gochana	0.08351			0.16802		
Bejhar	0.02335	Total	0.57757	0.01856	Total	0.67109
Arhar	0.02519			0.02511		
Urd	0.01779			0.02978		
Masoor	0.00672			0.00718		
Other Pulses	0.00206	Total	0.62933	0.00238	Total	0.73554
Vegetables	0.04851			0.04832		
Milk	0.05723			0.07685		
Deshi ghee	0.01892			0.03371		
Sugar	0.00802	Total	0.76201	0.00954	Total	0.90296

	2.25-6.25 acres			6.25-15.0 acres		
	Rs.		Rs.	Rs.		Rs.
Wheat	0.25911			0.33574		
Rice	0.10734	Total	0.36645	0.08987	Total	0.42561
Gram	0.00205			0.00224		
Barley	0.00543			0.00118		
Jowar	0.01441			0.00805		
Bajra	0.06266			0.05545		
Maize	0.09248			0.05639		
Gojai	0.00463			0.00458		
Gochana	0.16945			0.23408		
Bejhar	0.02548	Total	0.74304	0.01564	Total	0.80325
Arhar	0.00974			0.02563		
Urd	0.02032			0.02097		
Masoor	0.00579			0.00474		
Other Pulses	0.00253	Total	0.78142	0.00317	Total	0.85776
Vegetables	0.05028			0.05365		
Milk	0.09579			0.14616		
Deshi ghee	0.05032			0.06600		
Sugar	0.01847	Total	0.99628	0.02033	Total	1.14449

	15.0-30.0 acres			Above 30.0 acres		
	Rs.		Rs.	Rs.		Rs.
Wheat	0.42014			0.39031		
Rice	0.07866	Total	0.49881	0.05192	Total	0.44223
Gram	0.00282			0.00501		
Barley	0.00266			0.00623		
Jowar	0.00291			0.00128		
Bajra	0.04066			0.03216		
Maize	0.06832			0.03174		
Gojai	0.00905			0.00225		
Gochana	0.25274			0.25664		
Bejhar	0.01290	Total	0.89088	0.01044	Total	0.788
Arhar	0.01990			0.02561		
Urd	0.03119			0.03118		
Masoor	0.00215			0.00356		
Other Pulses	0.00342	Total	0.94754	0.00379	Total	0.85216
Vegetables	0.00619			0.07259		
Milk	0.19722			0.15886		
Deshi ghee	0.10059			0.08472		
Sugar	0.01269	Total	1.26423	0.01612	Total	1.18445

Non-Agriculturists

	Rs.		Rs.
Wheat	0.36894		
Rice	0.07639	Total	0.4453
Gram	0.00154		
Barley	0.00070		
Jowar	0.00395		
Bajra	0.05349		
Maize	0.15487		
Gojai	0.00300		
Gochana	0.19531		
Bejhar	0. 03339	Total	0.89159
Arhar	0.02215		
Urd	0.03117		
Masoor	0.01079		
Other Pulses	0.00423	Total	0.95994
Vegetables	0.05331		
Milk	0.07683		
Deshi ghee	0.07153		
Sugar	0.01844	Total	1.18006

APPENDIX 5

VALUE OF NON-BASIC CONSUMPTION

Table 32: Value of Non-Basic Consumption for households of less than 1.0 acre

	Western Region			Eastern Region		
	Rs.			Rs.		
Mustard Oil	0,03020			0,03687		
Other Milk Products	0,00361			0,00546		
Eggs, Meat, Fish	0,01860			0,00119		
Cooked Food	0,00678			0,00594		
Fuel	0,00739	Total	0,06658	0,01087	Total	0,06033
Cloth	0,04338			0,03667		
Clothes	0,00802			0,00264		
Shoes	0,00555	Total	0,12353	0,00090	Total	0,10054
Building Materials	0,00158			0,00343		
Educ'n, Stationery	0,00665			0,00231		
Medicines	0,00138			0,00546		
Ornaments	0,00138			0,00361		
Tobacco	0,00230			0,01863		
Utensils	0,00030			0,00201		
Entertainment	0,00133			0,00028		
Miscellaneous	0,00193	Total	0,13965	0,00153	Total	0,1378

Table 33: Value of Non-Basic Consumption for households with holdings between 1.0 and 2.25 acres

	Western Region			Eastern Region		
	Rs.		Rs.	Rs.		Rs.
Mustard Oil	0,03630			0,03875		
Other Milk products	0,00652			0,00526		
Eggs, Meat, Fish	0,02624			0,00519		
Cooked Food	0,00168			0,00327		
Fuel	0,06531	Total	0,13605	0,07287	Total	0,12534
Cloth	0,05313			0,03521		
Clothes	0,00856			0,00311		
Shoes	0,00627	Total	0,20401	0,00151	Total	0,16517
Building Materials	0,00634			0,00285		
Educ'n, Stationery	0,00822			0,00610		
Medicine	0,02332	Total	0,24189	0,01028	Total	0,1844
Ornaments	0,01409			0,00458		
Tobacco	0,02260			0,01439		
Utensils	0,00303			0,00179		
Entertainment	0,00060			0,00035		
Miscellaneous	0,02320	Total	0,30541	0,01464	Total	0,22015

Table 34: Value of Non-Basic Consumption for households with holdings between 2.25 and 6.25 acres

	Western Region			Eastern Region		
	Rs.		Rs.	Rs.		Rs.
Mustard Oil	0,03827			0,03895		
Other Milk Products	0,00847			0,00354		
Eggs, Meat, Fish	0,01833			0,00151		
Cooked Food	0,00362			0,00505		
Fuel	0,07136	Total	0,14005	0,06245	Total	0,1115
Cloth	0,07336			0,04192		
Clothes	0,01082			0,00330		
Shoes	0,00841	Total	0,23264	0,00195	Total	0,15867
Building Materials	0,00842			0,00643		
Educ'n, Stationery	0,00957			0,00692		
Medicine	0,03205	Total	0,28268	0,01116	Total	0,18318
Ornaments	0,01261			0,00979		
Tobacco	0,02483			0,01435		
Utensils	0,00607			0,00266		
Entertainment	0,00077			0,00162		
Miscellaneous	0,02609	Total	0,35305	0,01583	Total	0,22743

Table 35: Value of Non-Basic Consumption for households with holdings between 6.25 and 15.0 acres

	Western Region			Eastern Region		
	Rs.		Rs.	Rs.		Rs.
Mustard Oil	0,03330			0,04237		
Other Milk Products	0,01244			0,00635		
Eggs, Meat, Fish	0,02734					
Cooked Food	0,00356			0,00492		
Fuel	0,06580	Total	0,14244	0,05819	Total	0,11183
Cloth	0,07871			0,04691		
Clothes	0,01090			0,00444		
Shoes	0,00974	Total	0,24179	0,00342	Total	0,1666
Building Materials	0,00572			0,00684		
Educ'n, Stationery	0,01934			0,01666		
Medicine	0,06122	Total	0,32807	0,01550	Total	0,2056
Ornaments	0,02065			0,01757		
Tobacco	0,02369			0,01315		
Utensils	0,00419			0,00362		
Entertainment	0,00223			0,00105		
Miscellaneous	0,03409	Total	0,41292	0,01862	Total	0,25961

Table 36: Value of Non-Basic Consumption for households with holdings between 15.0 and 30.0 acres

	Western Region			Eastern Region		
	Rs.		Rs.	Rs.		Rs.
Mustard Oil	0.03539			0.04483		
Other Milk Products	0.01529			0.00774		
Eggs, Meat, Fish	0.01580			0.00337		
Cooked Food	0.00396			0.00576		
Fuel	0.07664	Total	0.14208	0.05568	Total	0.11738
Cloth	0.11882			0.07076		
Clothes	0.01708			0.00795		
Shoes	0.01362	Total	0.29660	0.00465	Total	0.20074
Building Materials	0.01852			0.00780		
Educ'n, Stationery	0.02800			0.01815		
Medicine	0.04022	Total	0.38334	0.01708	Total	0.24377
Ornaments	0.01785			0.02564		
Tobacco	0.03060			0.01356		
Utensils	0.00758			0.00334		
Entertainment	0.00257			0.00155		
Miscellaneous	0.03891	Total	0.48085	0.03693	Total	0.32479

Table 37: Value of Non-Basic Consumption for households with holdings of more than 30 acres

	Western Region			Eastern Region		
	Rs.		Rs.	Rs.		Rs.
Mustard Oil	0.03086			0.04250		
Other Milk Products	0.01384			0.00735		
Eggs, Meat, Fish	0.01860			0.00197		
Cooked Food	0.00676			0.00533		
Fuel	0.10751	Total	0.17757	0.04617	Total	0.10352
Cloth	0.12500			0.07483		
Clothes	0.01807			0.00579		
Shoes	0.01379	Total	0.33443	0.00602	Total	0.19016
Building Materials	0.03500			0.01495		
Educ'n, Stationery	0.03320			0.02562		
Medicine	0.06142	Total	0.46405	0.02194	Total	0.25267
Ornaments	0.05123			0.02070		
Tobacco	0.01628			0.02770		
Utensils	0.00608			0.00271		
Entertainment	0.00212			0.01739		
Miscellaneous	0.03290	Total	0.59935	0.03232	Total	0.32680

Table 38: Value of Non-Basic Consumption for Non-Agriculturist Households

	Western Region			Eastern Region		
	Rs.		Rs.	Rs.		Rs.
Mustard Oil	0,04514			0,03850		
Other Milk Products	0,00305			0,00675		
Eggs Meat Fish	0,02310			0,00705		
Cooked Food	0,01345			0,02006		
Fuel	0,14129	Total	0,22603	0,05965	Total	0,13201
Cloth	0,06778			0,04054		
Clothes	0,01253			0,00367		
Shoes	0,01250	Total	0,31884	0,00182	Total	0,17804
Building Materials	0,00287			0,00339		
Educ'n, Stationery	0,02090			0,00338		
Medicines	0,02864	Total	0,37125	0,00361	Total	0,18842
Ornaments	0,00310			0,00458		
Tobacco	0,05113			0,02108		
Utensils	0,00400			0,00771		
Entertainment	0,00105			0,00094		
Miscellaneous	0,03244	Total	0,46297	0,02203	Total	0,24476

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